PROVO REGIONAL CENTER
CHILLERS REPLACEMENT AND CONTROLS UPGRADES
150 EAST CENTER STREET PROVO, UT
DFCM PROJECT NO. 05031310
PROVO, UTAH

DFCM DESIGN AND CODE CRITERIA

(Fee A.E: Attach and fill in applicable data for each drawing submittal)

Applicable Codes:	Year		Year
International Building Code	2003	International Mechanical Code	2003
Planning & Design Criteria to Prevent Architectural Barriers for the Aged and the Physically Handicapped.		International Plumbing Code	2003
		Ashrae/IES Energy Code	2001
		National Electrical Code	2002

A. Occupancy and Group : (N/A)

Change in Use : Yes ____ No ____ (N/A) Mixed Occupancy : Yes ____ No ____ (N/A)

B. Type of Construction (Circle) (N/A) I F.R. | II F.R. | II 1 HR. | II B | III 1 HR. | III N | IV H.T. | V 1 HR. | V N

C. Location on Property : F.R. Ext. Walls (Hrs.): N.R. Ext. Wall Opening(s) Protection (Hrs.) N.R.

D. Occupancy separation required (Hrs.):	Each Occupancy		
Sprinklered: Indicate Yes or (No)	B/R-2=2 HR		
Stories : 1 or multiple (N/A)			
a. Actual Area²(ft)			
b. Basic allowable area :	92,000 SF		
c. Allowable Area Increase due to side yards: N	% | Area (ft²) N.A.	% | Area (ft)	% | Area (ft)
d. Side yard area increase (ft):	N.A.		
Accumulative sub-total (b=d):			
Sprinkler: area increase (x3 single) (x 2 multi)			
e. Total Allowable Area for a single story:	N.A.		
x 2 for multi-story building:			
f. Ratio = a/e (Actual divided by allowable)			

E. Fire-Resistive Requirements (Hrs.): (1 Hr., 2Hr., 3Hr., 4Hr., N. H.T.)

Exterior Bearing Walls:	N/A	Floors – Ceiling Floors	N/A
Interior Bearing Walls:	N/A	Roofs – Ceiling Roofs	N/A
Exterior Non-bearing Walls:	N/A	Exterior Doors and Windows	NR
Structural Frame:	N/A	Shaft Enclosures	N/A
Partitions – Permanent:	N/A		

(OCCUPANCY SEPARATION – N.A.)

State of Utah—Department of Administrative Services

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT

4110 State Office Building / Salt Lake City, Utah 84114 / 538-3018

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09/22/05
WINWARD M. PACKER
No. 375080
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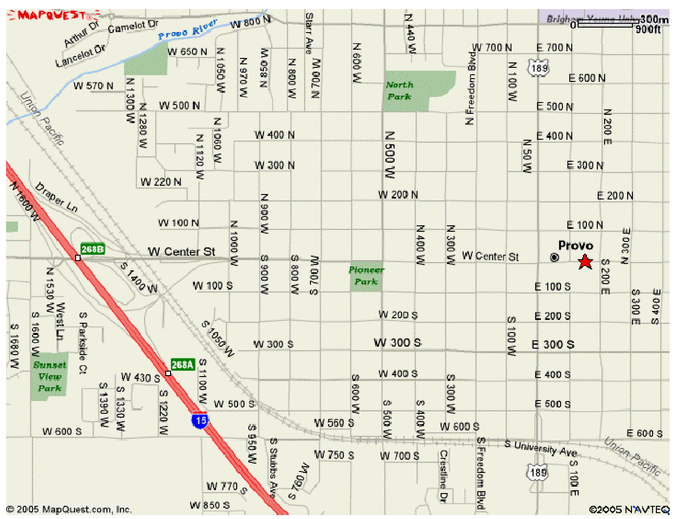
DRAWING INDEX:



GENERAL NOTES:

G-1 MECHANICAL INFORMATION IS NOT LIMITED TO THE MECHANICAL DRAWINGS. CONTRACTOR SHALL BE RESPONSIBLE FOR INFORMATION ON ALL OTHER CONSTRUCTION DOCUMENTS INCLUDING DRAWINGS BY OTHER DISCIPLINES AND SPECIFICATIONS.

A - EACH DRAWING SHEET AND THE SPECIFICATIONS HAVE BEEN PREPARED TO SUPPLEMENT EACH OTHER AND THEY SHALL BE INTERPRETED AS AN INTEGRAL UNIT WITH ITEMS SHOWN AND NOTED ON ONE AND NOT THE OTHER BEING FURNISHED AND INSTALLED AS THOUGH SHOWN AND CALLED OUT IN ALL PLACES. ITEMS IN SPECIFICATIONS OR DRAWINGS LISTED WHICH ARE DIFFERING IN EFFICIENCY OR QUALITY SHALL BE HELD TO THE GREATEST OF: EFFICIENCY, QUALITY OR GOVERNING CODE.

B - THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR THE INSTALLATION OF THE SYSTEMS ACCORDING TO THE TRUE INTENT AND MEANING OF THE CONTRACT DOCUMENTS.

C - THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT WITH PROPER SERVICE ACCESS AND CLEARANCES ACCORDING TO MANUFACTURERS RECOMMENDATIONS. THE CONTRACTOR SHALL REVIEW SUPPLIERS BID PACKAGES FOR COMPLETENESS AND COMPLIANCE TO THE SPECIFICATIONS, SCHEDULES, AND DESIGN INTENT (ALL EQUIPMENT AND METHODS). THE CONTRACTOR SHALL REMOVE AND REINSTALL CORRECTLY AT HIS OWN EXPENSE ANY EQUIPMENT NOT IN COMPLIANCE.

D - THE CONTRACTOR SHALL CONSULT MANUFACTURERS INSTALLATION INSTRUCTIONS FOR SIZES, METHODS, ACCESSORIES, AND CLEARANCES IN SPACE AVAILABLE PRIOR TO BIDDING PROJECT.

E - ANYTHING NOT CLEAR OR IN CONFLICT WILL BE EXPLAINED BY MAKING APPLICATION TO THE ARCHITECT IN WRITING.

G-2 ANY AND ALL ALTERATIONS TO THE SYSTEM SHOWN SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR. ARCHITECT SHALL BE NOTIFIED IN WRITING PRIOR TO CHANGES.

G-3 CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND LOCATIONS.

G-4 THE WORKING DRAWINGS ARE DIAGRAMMATIC. THEY DO NOT SHOW EVERY OFFSET, BEND, OR ELBOW NECESSARY FOR THE COMPLETE INSTALLATION IN THE SPACE PROVIDED. ALL LOCATIONS FOR MECHANICAL EQUIPMENT SHALL BE FIELD VERIFIED AND COORDINATED WITH ALL DRAWINGS. THE CONTRACTOR SHALL PROVIDE OR COORDINATE WITH THE GENERAL CONTRACTOR PROVISIONS FOR BLOCKOUTS OR CORE DRILLS THROUGH STRUCTURE.

G-5 THE INSTRUCTION TO "PROVIDE" ALSO INCLUDES INSTALLATION.

G-6 MECHANICAL CONTRACTOR SHALL PROVIDE AND INSTALL SMOKE AND FIRE DAMPERS AS REQUIRED BY LOCAL CODES AND AUTHORITIES.

G-7 SHEET METAL DUCT SIZES SHOWN ON DRAWINGS ARE FREE AREA DIMENSIONS.

G-8 PROVIDE AND INSTALL BALANCING DAMPERS IN ALL SUPPLY AND EXHAUST AIR BRANCH DUCTS. BALANCE TO CFM SHOWN ON PLAN.

G-9 SEE ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF DIFFUSERS AND GRILLES.

G-10 PROVIDE TURNING VANES IN ALL ELBOWS OF RECTANGULAR DUCT.

G-11 THE CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY IN HANDLING AND DISPOSING OF REFRIGERANTS, OILS, ETC. ALL SUCH MATERIALS SHALL BE HANDLED, DISPOSED, AND USED ON ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL LAWS.

G-12 THE MECHANICAL CONTRACTOR SHALL VERIFY MOTOR VOLTAGES WITH THE ELECTRICAL DRAWING BEFORE ORDERING MOTORIZED EQUIPMENT AND CONTROLS. MOTOR NAMEPLATE VOLTAGE SHALL BE NEMA STANDARD 200 VOLT FOR 208 VOLT, THREE PHASE SYSTEM AND SHALL BE NEMA STANDARD 230 VOLT FOR 240 VOLT, THREE PHASE, OR SINGLE PHASE SYSTEM. STARTER HEATER INSTALLED SHALL BE COORDINATED WITH THE NAMEPLATE DATA.

G-13 C.F.M. LISTED IS ACTUAL AIR.

G-14 SUPPLIERS SHALL REVIEW ALL DRAWINGS AND THE SPECIFICATIONS PRIOR TO SUBMITTING PRICES TO THE CONTRACTOR. ALL QUESTIONS AND DISCREPANCIES SHALL BE BROUGHT TO THE ARCHITECT'S ATTENTION PRIOR TO BIDDING.

G-15 CONTRACTOR SHALL THOROUGHLY REVIEW AND SIGN SUBMITTALS FOR COMPLETENESS AND COMPLIANCE TO THE SPECIFICATIONS PRIOR TO ENGINEER'S REVIEW. SUPPLIERS SHALL HIGHLIGHT OR MARK ALL INFORMATION REQUIRED TO SHOW COMPLIANCE TO THE SPECIFICATIONS. ALL REQUESTED EXCEPTIONS TO THE SPECIFICATIONS, OR SCHEDULES SHALL BE CLEARLY NOTED AND EXPLAINED. SUBMITTAL REVIEW AND ACCEPTANCE IS FOR DESIGN CONCEPT ONLY, AND DOES NOT AT ANY TIME RELIEVE THE CONTRACTOR OF RESPONSIBILITY TO MEET SPECIFICATIONS, CAPACITIES, OR DESIGN INTENT.

G-16 ALL MECHANICAL SHALL BE INSTALLED AND CONFORM TO THE 2003 EDITION OF THE IMC WITH UTAH ANNOTATIONS AND LOCAL AUTHORITY REQUIREMENTS.

G-17 CONTRACTOR SHALL DRAIN AND RE-FILL HOT WATER SYSTEM AS NECESSARY TO ACCOMMODATE VALVE CHANGES. COORDINATE WITH APPROVED WATER TREATMENT SERVICE ORGANIZATION TO PROVIDE NEW TREATMENT FOR NEW MAKE-UP WATER.

G-18 BUILDING WILL REMAIN OCCUPIED THROUGHT-OUT PROJECT. THIS CONTRACTOR SHALL SCHEDULE ALL WORK TO AVOID DISRUPTION OF OCCUPANTS. HEATING SYSTEM SHUT DOWNS SHALL OCCUR AFTER HOURS.

G-19 MECHANICAL CONTRACTOR WILL BE THE PRIME CONTRACTOR FOR THIS JOB AND IS RESPONSIBLE FOR ALL OTHER DISCIPLINES. THIS INCLUDES ALL INCIDENTAL WORK REQUIRED TO HAVE A COMPLETE FUNCTIONAL SYSTEM UPON PROJECT COMPLETION.

MECHANICAL LEGEND

SYMBOL	ABR.	DESCRIPTION	SYMBOL	ABR.	DESCRIPTION
AIR SIDE			WET SIDE		
		EXISTING AIR DUCT TO BE REMOVED			DIRECTION OF FLOW
		EXISTING AIR DUCT TO REMAIN			ELBOW UP
		NEW AIR DUCT			ELBOW DOWN
		RECT. TO RECT. AIR DUCT TAKE-OFF			TEE UP
		RECT. TO RND. AIR DUCT TAKE-OFF			TEE DOWN
		RND. TO RND. AIR DUCT TAKE-OFF			EXISTING PIPING TO BE REMOVED
		RECT. TAKE-OFF AT END OF MAIN			EXISTING PIPING TO REMAIN
		FLEXIBLE AIR DUCT			PIPE CAP OR PLUG
		LINED DUCT	HWS		HEATING WATER SUPPLY
		VANED ELBOW	HWR		HEATING WATER RETURN
		RADIUS ELBOW			EXHAUST DUCT DOWN
		CONCENTRIC DUCT TRANSITION			ROUND DUCT UP
		ECCENTRIC DUCT TRANSITION			ROUND DUCT DOWN
		FLEXIBLE DUCT CONNECTION			EXISTING EQUIPMENT TO BE REMOVED
VD		VOLUME DAMPER		E	EXISTING EQUIPMENT TO REMAIN
		SUPPLY AIR DIFFUSER		N	NEW EQUIPMENT
		RETURN AIR, FRESH AIR, AND TRANSFER AIR GRILLE	RD	RD	RADIATION TYPE FIRE DAMPER
		CEILING MOUNTED EXHAUST FAN OR EXHAUST GRILLE	FS	FS	FIRE & SMOKE DAMPER
		RETURN OR OUTSIDE AIR DUCT UP	T	T'STAT	WALL MOUNTED THERMOSTAT
		SUPPLY DUCT UP	S		WALL MOUNTED TEMP. SENSOR
		EXHAUST AIR INTAKE UP	SA		SUPPLY AIR
		RETURN OR OUTSIDE AIR DUCT DOWN	RA		RETURN AIR
		SUPPLY DUCT DOWN	EA		EXHAUST AIR
			M		MOTORIZED 2-WAY CONTROL VALVE

GENERAL TERMINOLOGY

A / ME-101 — SECTION LETTER DESIGNATION; SECTION DRAWN ON THIS SHEET	D-1 / CFM		REGISTER, GRILLE OR DIFFUSER DESIGNATION WITH BALANCING CFM LISTED BELOW
A2 / ME-501 — DETAIL NUMBER DESIGNATION; DETAIL DRAWN ON THIS SHEET	R-1		GRILLE, OR LOUVER DESIGNATION WHERE BALANCING NOT REQUIRED
	1		REVISION DESIGNATOR AND NUMBER
AH / 1 — MECHANICAL EQUIPMENT DESIGNATION; EQUIPMENT ITEM DESIGNATION	1		KEY NOTE DESIGNATOR AND NUMBER
			POINT OF CONNECTION

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PROJECT NAME & ADDRESS

PROVO REGIONAL CENTER CHILLER REPLACEMENT AND CONTROLS UPGRADE

DFCM No. 05031310

Provo, Utah

MARK	DATE	REVISION

PROJECT MANAGER: WMP
DRAWN BY: STAFF
CHECKED BY: SLW
DATE: 09/22/05
WHW JOB NO.: 05018

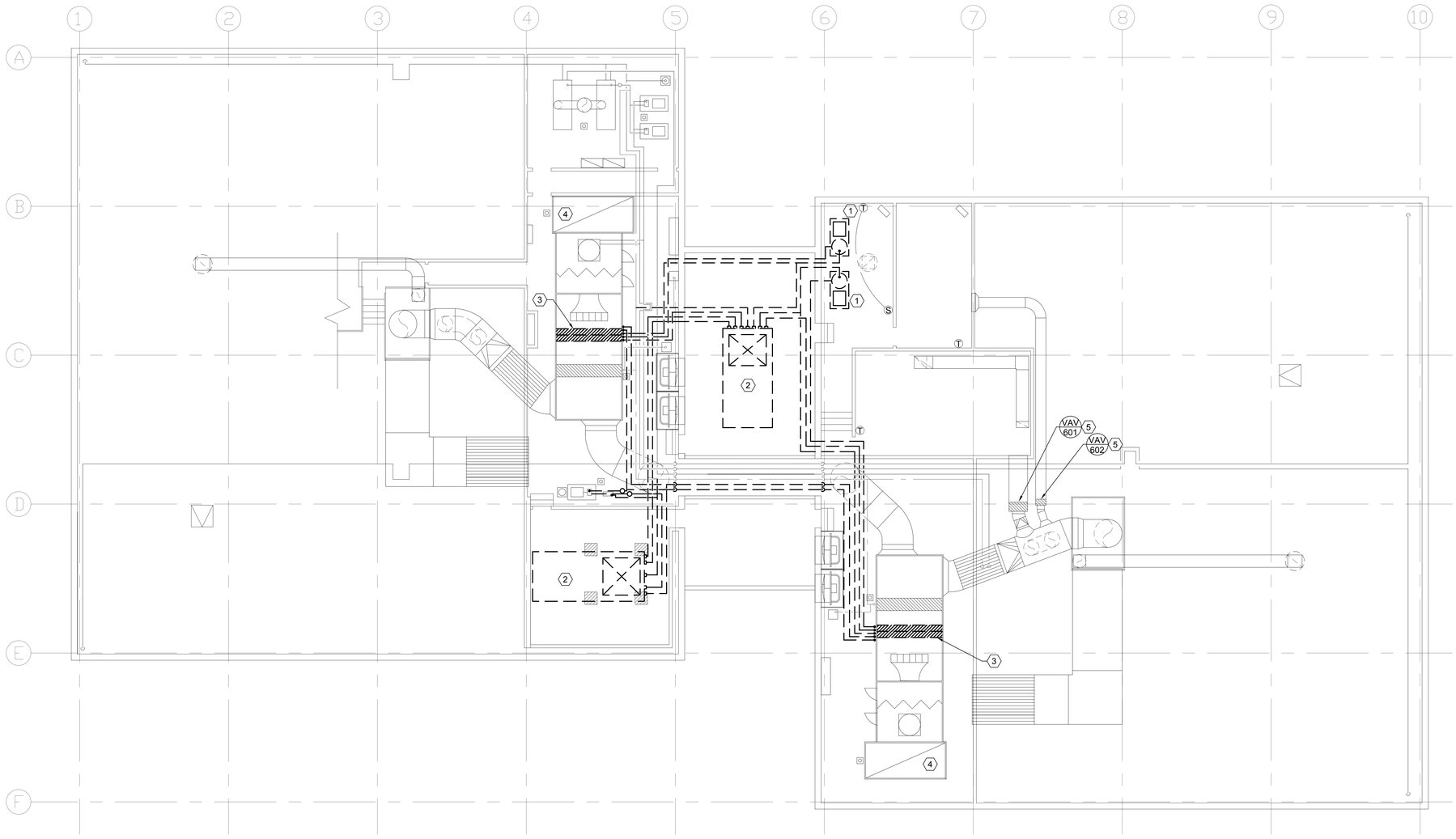
PROFESSIONAL ENGINEER 09/22/05 WINWARD M. PACKER No. 375080 STATE OF UTAH

SHEET TITLE

MECHANICAL GENERAL NOTES AND LEGENDS

SHEET NO.

MG001



PENTHOUSE MECHANICAL DEMOLITION PLAN

SCALE: 1/8" = 1'-0"

N

SHEET NOTES

1. REMOVE EXISTING COMPRESSORS AND ASSOCIATED PIPING, CONTROLS, ETC.
2. REMOVE EXISTING FLUID COOLING TOWER AND ASSOCIATED PIPING, CONTROLS, ETC.
3. REMOVE EXISTING DX COOLING COILS.
4. REMOVE EXISTING FRESH AIR AND RETURN AIR DAMPERS AND THEIR ASSOCIATED ACTUATORS, CONTROLS, ETC.
5. EXISTING VAV BOX SHALL REMAIN. REPLACE CONTROLS. SEE SHEET ME401.

GENERAL NOTES:

1. FIELD VERIFY ALL EXISTING CONDITIONS, INCLUDING SIZE, LOCATION, ETC. OF ALL EXISTING EQUIPMENT, CONTROLS, VALVES, ETC.

2. BUILDING WILL REMAIN OCCUPIED THROUGHOUT PROJECT. ALL WORK IN OCCUPIED SPACES, AS WELL AS ANY SHUT-DOWNS SHALL OCCUR AFTER REGULAR BUSINESS HOURS.

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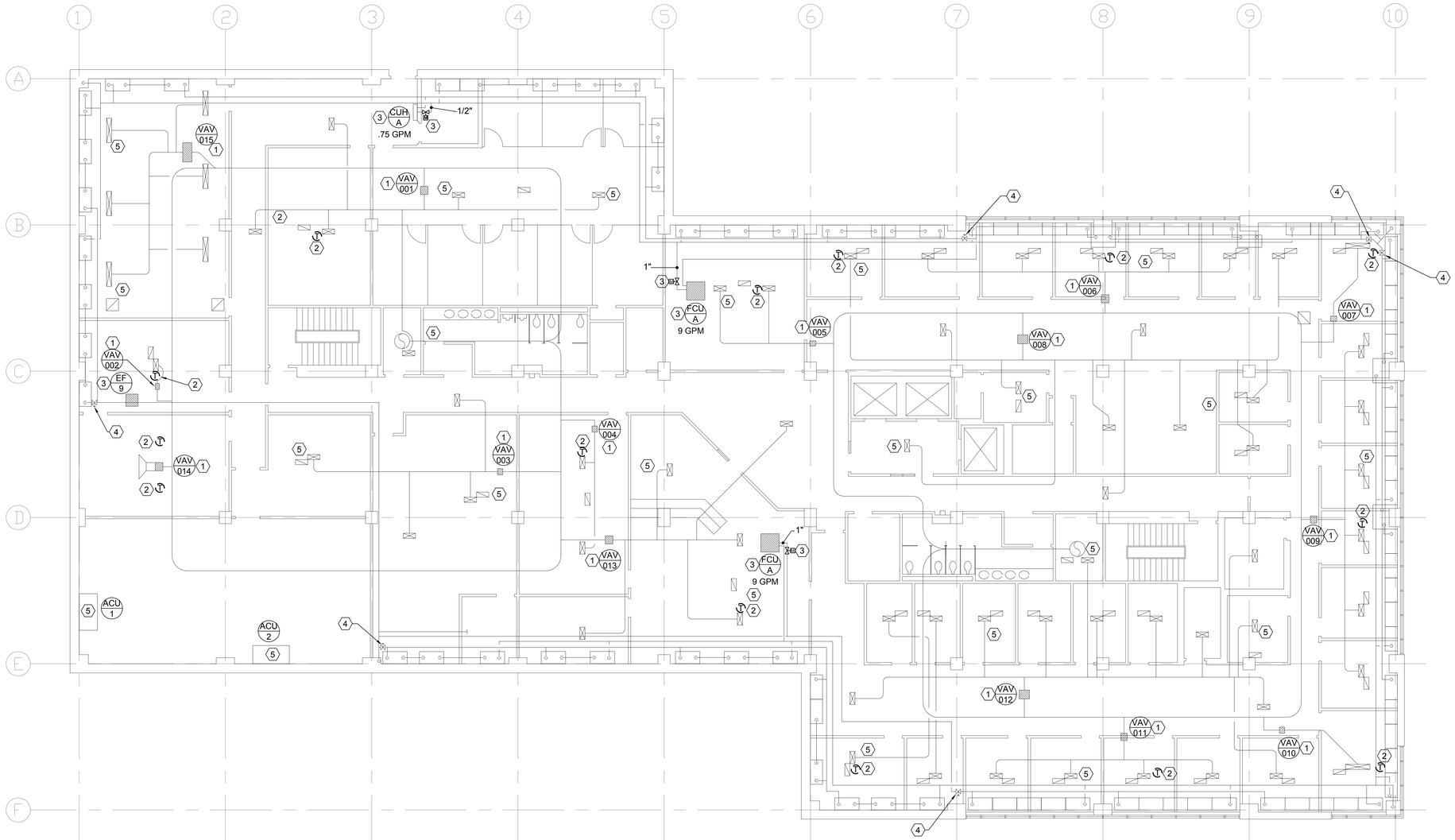
SHEET TITLE

PENTHOUSE MECHANICAL DEMOLITION PLAN

SHEET NO.

MD401



MECHANICAL BASEMENT FLOOR PLAN

SCALE: 1/8" = 1'-0"

N

SHEET NOTES

1. REPLACE EXISTING VAV BOX ASC, ACTUATOR, AND ALL OTHER ASSOCIATED CONTROLS. EXISTING VAV BOX SHALL REMAIN.
2. REPLACE EXISTING THERMOSTAT WITH NEW DDC THERMOSTAT.
3. REPLACE EXISTING CONTROLLERS FOR EXISTING FAN COIL UNITS, CABINET UNIT HEATERS, EXHAUST FANS, AND ALL OTHER HVAC EQUIPMENT. REPLACE EXISTING HOT WATER CONTROL VALVE. FIELD VERIFY EXACT SIZE AND LOCATION. RE-BALANCE HOT WATER TO UNIT TO GPM SHOWN.
4. REPLACE EXISTING CONTROL VALVES FOR CEILING RADIANT PANELS.
5. EXISTING EQUIPMENT, DUCTWORK, GRILLES, CEILING RADIANT PANELS, ETC. SHALL REMAIN.

GENERAL NOTES:

1. FIELD VERIFY ALL EXISTING CONDITIONS, INCLUDING SIZE, LOCATION, ETC. OF ALL EXISTING EQUIPMENT, CONTROLS, VALVES, ETC.

2. BUILDING WILL REMAIN OCCUPIED THROUGHOUT PROJECT. ALL WORK IN OCCUPIED SPACES, AS WELL AS ANY SHUT-DOWNS SHALL OCCUR AFTER REGULAR BUSINESS HOURS.

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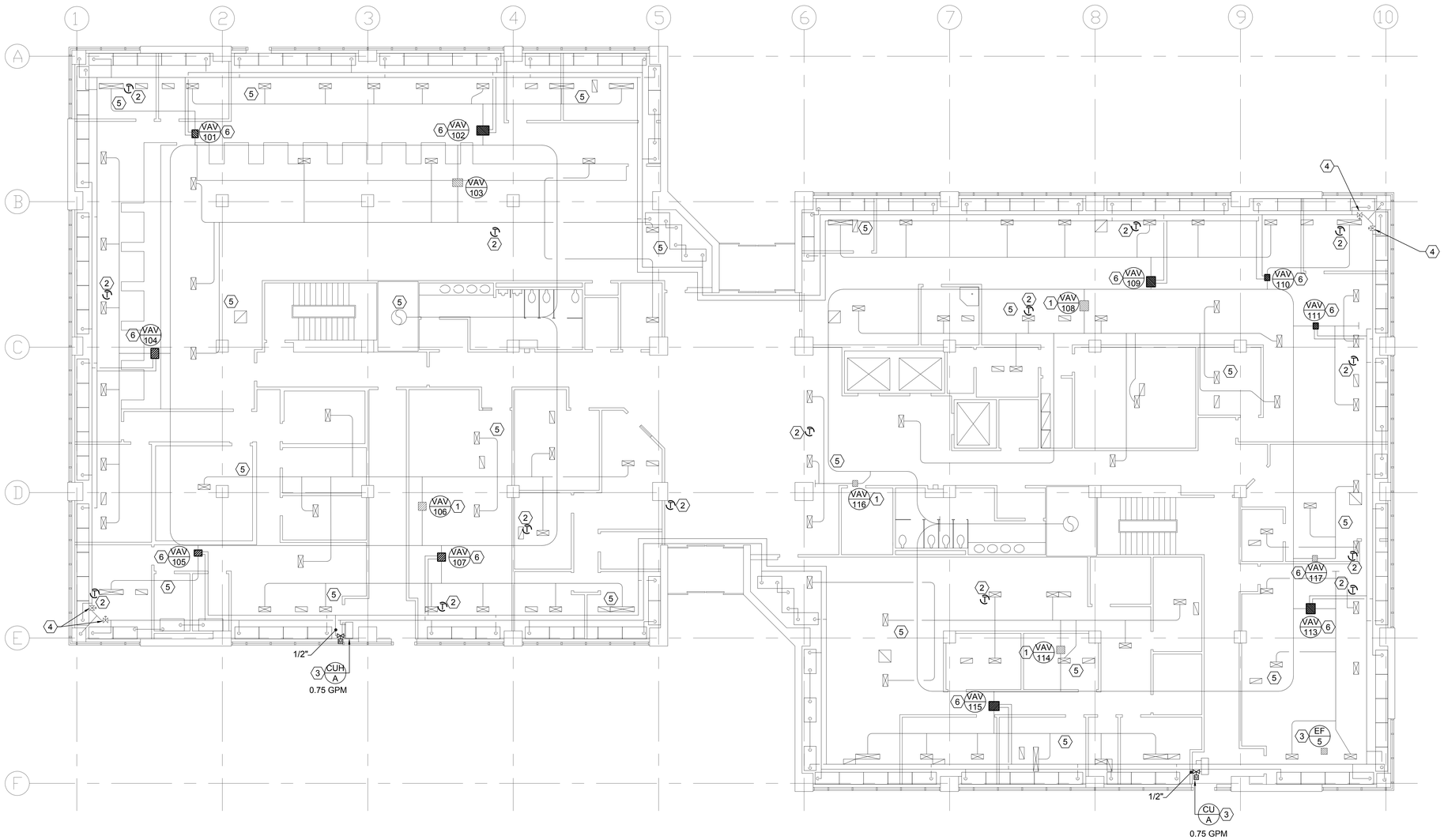
SHEET TITLE

BASEMENT MECHANICAL PLAN

SHEET NO.

ME101



1ST FLOOR MECHANICAL PLAN

SCALE: 1/8" = 1'-0"

N

SHEET NOTES

1. REPLACE EXISTING VAV BOX ASC, ACTUATOR, HOT WATER CONTROL VALVE, AND ALL OTHER ASSOCIATED CONTROLS. EXISTING VAV BOX SHALL REMAIN.
2. REPLACE EXISTING THERMOSTAT WITH NEW DDC THERMOSTAT.
3. REPLACE EXISTING CONTROLLERS FOR EXISTING FAN COIL UNITS, CABINET UNIT HEATERS, EXHAUST FANS, AND ALL OTHER HVAC EQUIPMENT. REPLACE EXISTING HOT WATER CONTROL VALVES WHERE SHOWN. FIELD VERIFY EXACT SIZE AND LOCATION. REBALANCE HOT WATER TO GPM SHOWN.
4. REPLACE EXISTING CONTROL VALVES FOR CEILING RADIANT PANELS.
5. EXISTING EQUIPMENT, DUCTWORK, GRILLES, CEILING RADIANT PANELS, ETC. SHALL REMAIN.
6. REPLACE EXISTING FAN POWERED BOX WITH PRESSURE INDEPENDENT VAV BOX. RE-PIPE AND RECONNECT DUCTWORK PER SPECIFICATIONS AND DETAILS. TRANSITION TO EXISTING DUCT SIZES. PROVIDE FLEXIBLE EQUIPMENT CONNECTORS AT EACH VAV BOX. REPLACE ALL EXISTING CONTROLS. COORDINATE WITH DIVISION 16 TO REMOVE EXISTING FAN POWER WIRING, CONDUIT, DISCONNECTS, ETC. FIELD VERIFY EXACT SIZE AND LOCATION OF EXISTING BOX, DUCTWORK, PIPING ETC. REBALANCE HOT WATER.

GENERAL NOTES:

1. FIELD VERIFY ALL EXISTING CONDITIONS, INCLUDING SIZE, LOCATION, ETC. OF ALL EXISTING EQUIPMENT, CONTROLS, VALVES, ETC.

2. BUILDING WILL REMAIN OCCUPIED THROUGHOUT PROJECT. ALL WORK IN OCCUPIED SPACES, AS WELL AS ANY SHUT-DOWNS SHALL OCCUR AFTER REGULAR BUSINESS HOURS.

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PROFESSIONAL ENGINEER
09/22/05
WINWARD M. PACKER
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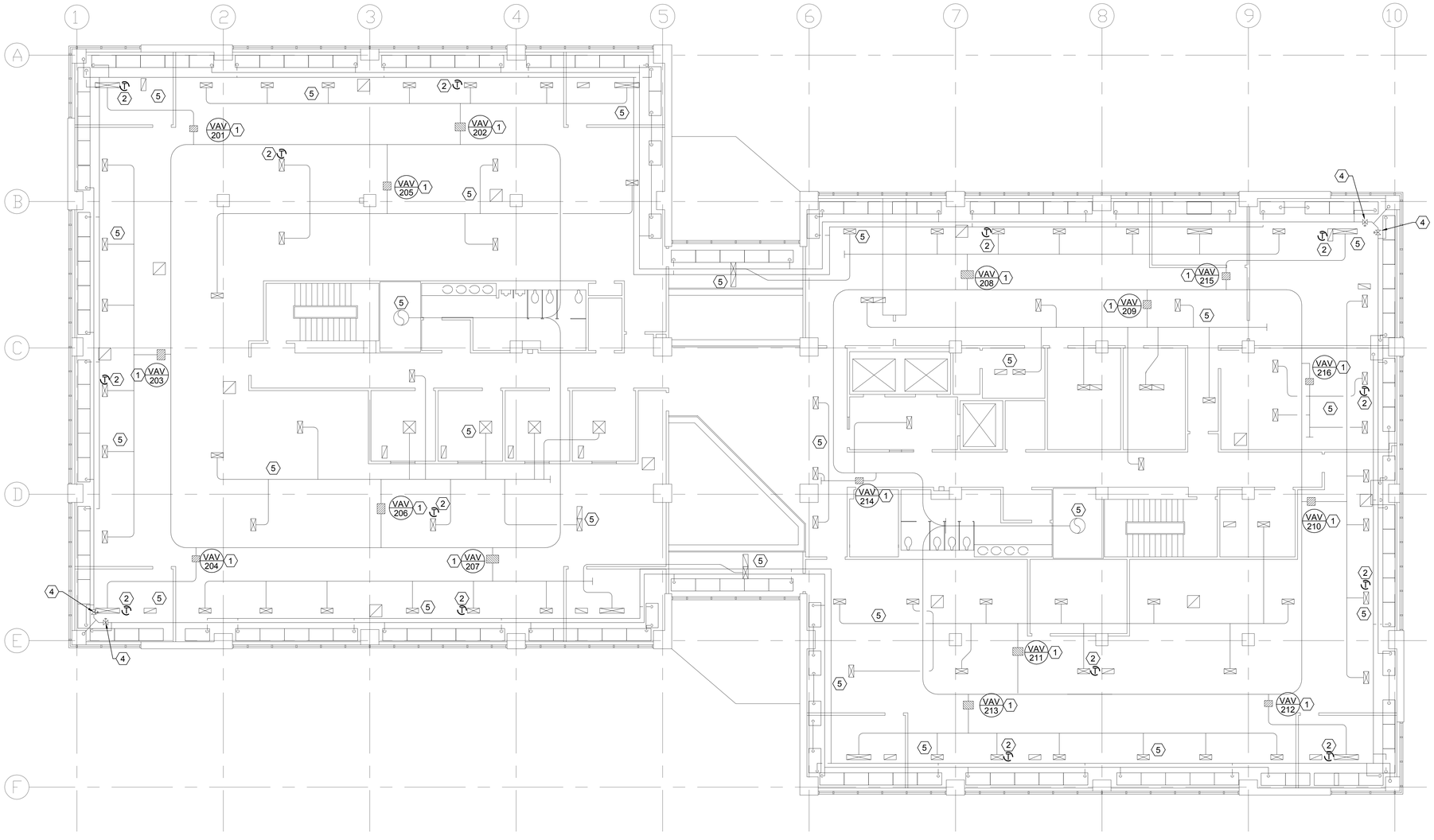
SHEET TITLE

FIRST LEVEL MECHANICAL PLAN

SHEET NO.

ME102



2ND FLOOR MECHANICAL PLAN

SCALE: 1/8" = 1'-0"

N

SHEET NOTES

1. REPLACE EXISTING VAV BOX ASC, ACTUATOR, HOT WATER CONTROL VALVE, AND ALL OTHER ASSOCIATED CONTROLS. EXISTING VAV BOX SHALL REMAIN.
2. REPLACE EXISTING THERMOSTAT WITH NEW DDC THERMOSTAT.
3. REPLACE EXISTING CONTROLLERS FOR EXISTING FAN COIL UNITS, CABINET UNIT HEATERS, EXHAUST FANS, AND ALL OTHER HVAC EQUIPMENT.
4. REPLACE EXISTING CONTROL VALVES FOR CEILING RADIANT PANELS.
5. EXISTING EQUIPMENT, DUCTWORK, GRILLES, CEILING RADIANT PANELS, ETC. SHALL REMAIN.

GENERAL NOTES:

1. FIELD VERIFY ALL EXISTING CONDITIONS, INCLUDING SIZE, LOCATION, ETC. OF ALL EXISTING EQUIPMENT, CONTROLS, VALVES, ETC.

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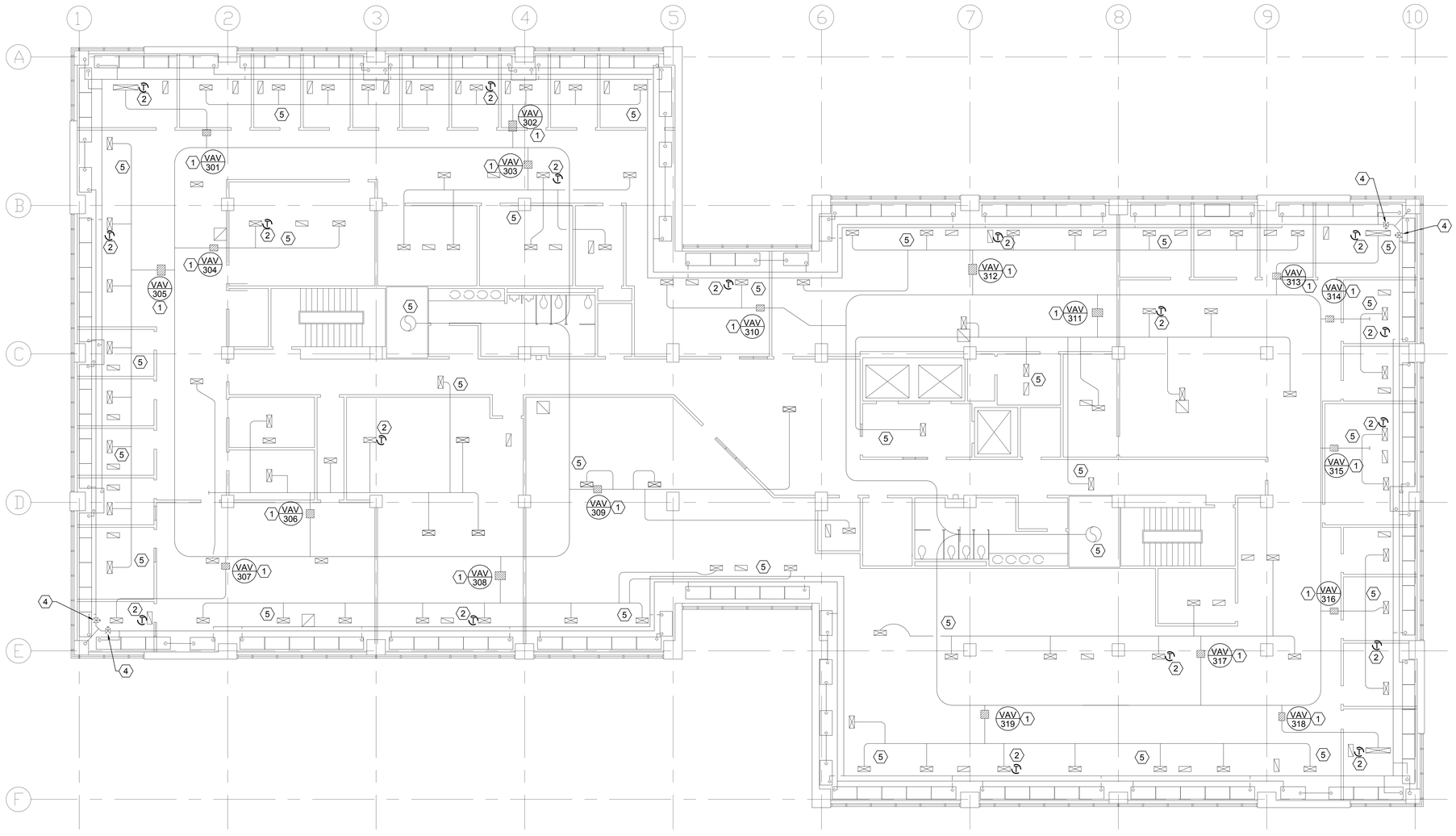
PROFESSIONAL ENGINEER 09/22/05 WINWARD M. PACKER No. 375080 STATE OF UTAH

SHEET TITLE

SECOND LEVEL MECHANICAL PLAN

SHEET NO.

ME103



3RD FLOOR MECHANICAL PLAN

SCALE: 1/8" = 1'-0"

N

SHEET NOTES

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2. REPLACE EXISTING THERMOSTAT WITH NEW DDC THERMOSTAT.
3. REPLACE EXISTING CONTROLLERS FOR EXISTING FAN COIL UNITS, CABINET UNIT HEATERS, EXHAUST FANS, AND ALL OTHER HVAC EQUIPMENT.
4. REPLACE EXISTING CONTROL VALVES FOR CEILING RADIANT PANELS.
5. EXISTING EQUIPMENT, DUCTWORK, GRILLES, CEILING RADIANT PANELS, ETC. SHALL REMAIN.

GENERAL NOTES:

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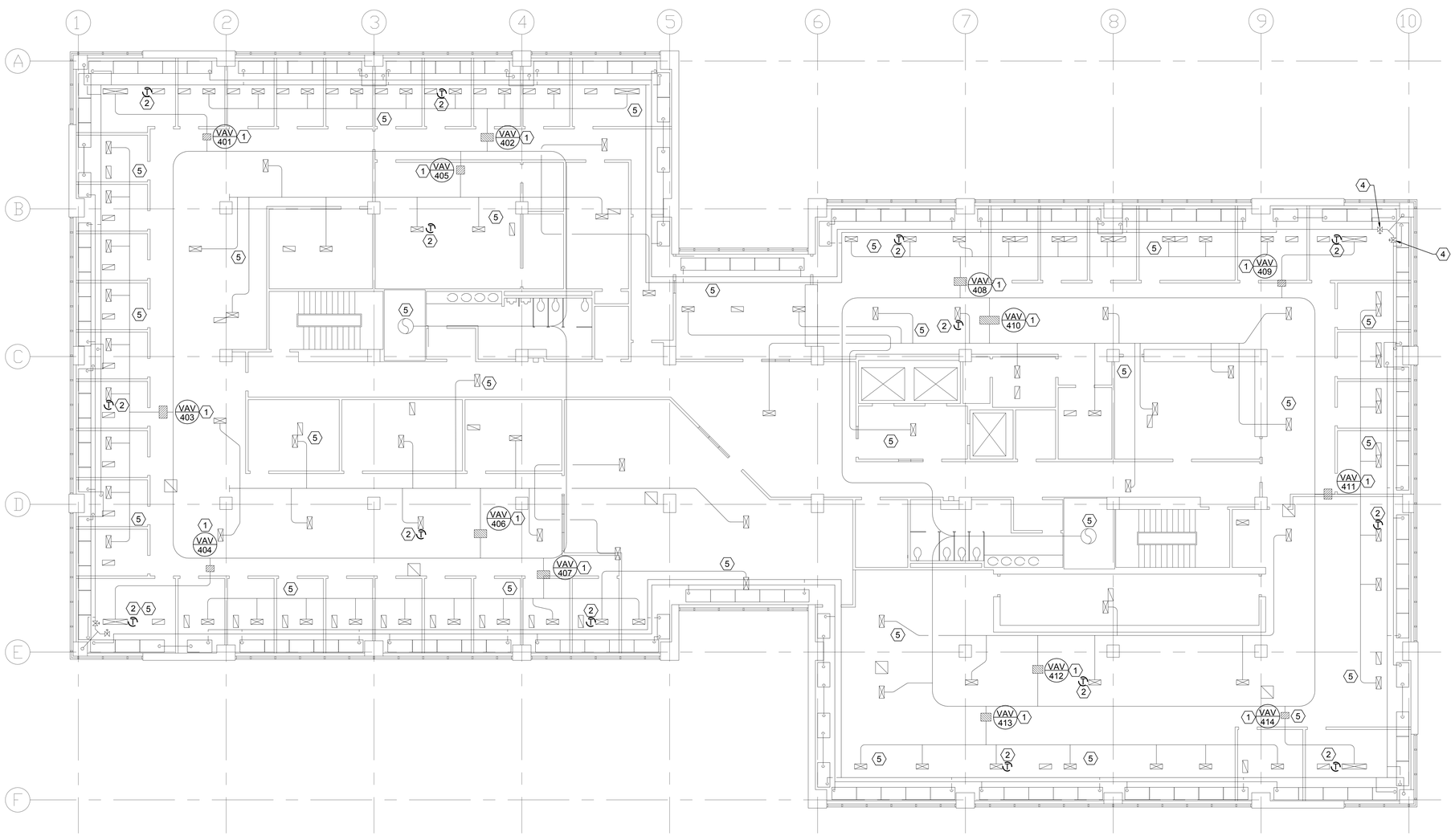
SHEET TITLE

THIRD LEVEL MECHANICAL PLAN

SHEET NO.

ME104



4TH FLOOR MECHANICAL PLAN

SCALE: 1/8" = 1'-0"

N

SHEET NOTES

1. REPLACE EXISTING VAV BOX ASC, ACTUATOR, HOT WATER CONTROL VALVE, AND ALL OTHER ASSOCIATED CONTROLS. EXISTING VAV BOX SHALL REMAIN.
2. REPLACE EXISTING THERMOSTAT WITH NEW DDC THERMOSTAT.
3. REPLACE EXISTING CONTROLLERS FOR EXISTING FAN COIL UNITS, CABINET UNIT HEATERS, EXHAUST FANS, AND ALL OTHER HVAC EQUIPMENT.
4. REPLACE EXISTING CONTROL VALVES FOR CEILING RADIANT PANELS.
5. EXISTING EQUIPMENT, DUCTWORK, GRILLES, CEILING RADIANT PANELS, ETC. SHALL REMAIN.

GENERAL NOTES:

1. FIELD VERIFY ALL EXISTING CONDITIONS, INCLUDING SIZE, LOCATION, ETC. OF ALL EXISTING EQUIPMENT, CONTROLS, VALVES, ETC.

2. BUILDING WILL REMAIN OCCUPIED THROUGHOUT PROJECT. ALL WORK IN OCCUPIED SPACES, AS WELL AS ANY SHUT-DOWNS SHALL OCCUR AFTER REGULAR BUSINESS HOURS.

State of Utah
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PROFESSIONAL MECHANICAL ENGINEERING
1354 East 3300 South Suite 200
SALT LAKE CITY, UTAH 84106
(801)486-4021, FAX 486-8836
EMAIL: excellence@whw-engineering.com

PROJECT NAME & ADDRESS

PROVO REGIONAL CENTER CHILLER REPLACEMENT AND CONTROLS UPGRADE

DFCM No. 05031310

Provo, Utah

MARK	DATE	REVISION

PROJECT MANAGER: WMP
DRAWN BY: STAFF
CHECKED BY: SLW
DATE: 09/22/05
WHW JOB NO.: 05018

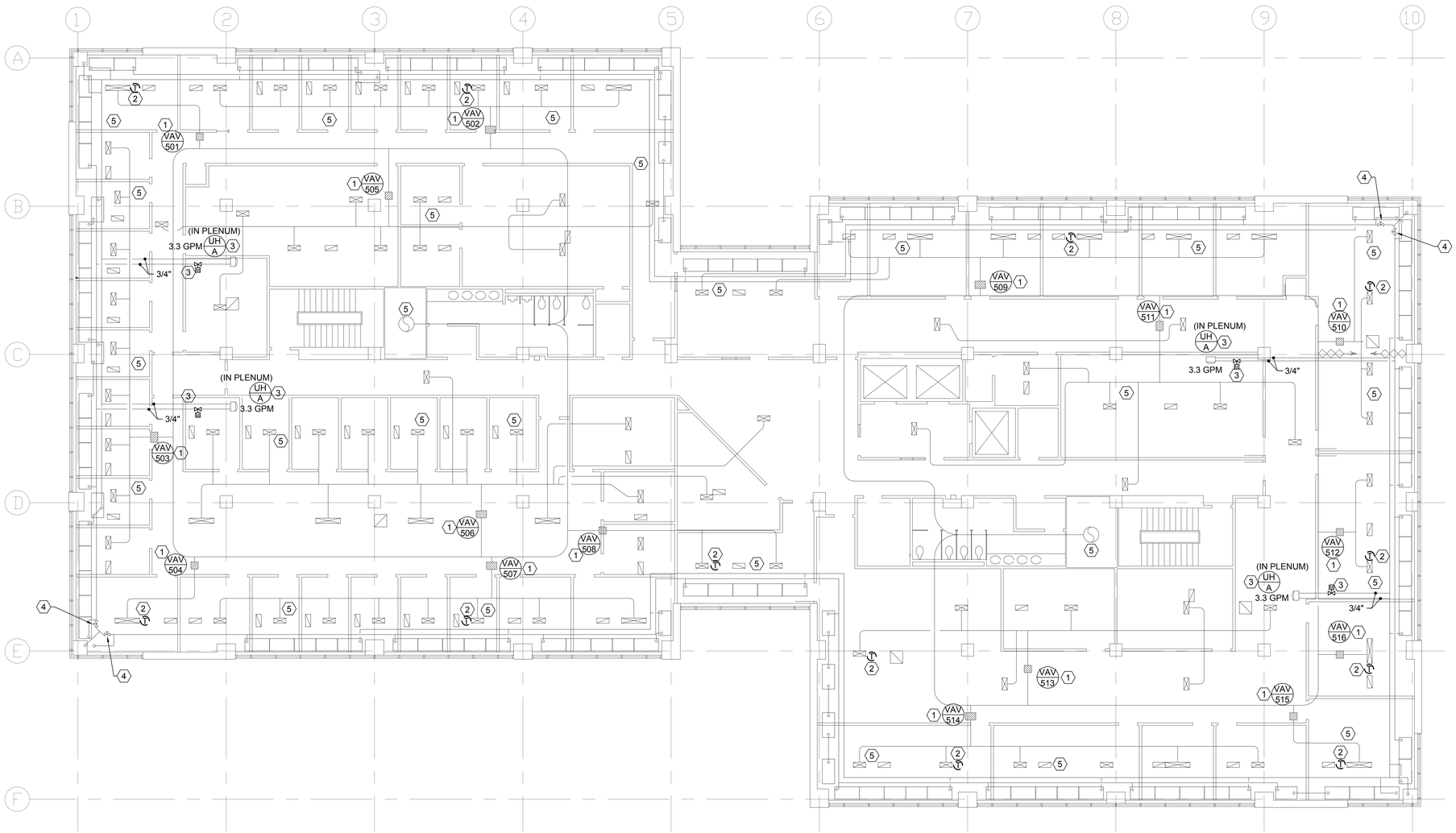
PROFESSIONAL ENGINEER
09/22/05
WINWARD M. PACKER
No. 375080
STATE OF UTAH

SHEET TITLE

FOURTH LEVEL MECHANICAL PLAN

SHEET NO.

ME105



5TH FLOOR MECHANICAL PLAN

SCALE: 1/8" = 1'-0"

N

SHEET NOTES

1. REPLACE EXISTING VAV BOX ASC, ACTUATOR, HOT WATER CONTROL VALVE, AND ALL OTHER ASSOCIATED CONTROLS. EXISTING VAV BOX SHALL REMAIN.
2. REPLACE EXISTING THERMOSTAT WITH NEW DDC THERMOSTAT.
3. REPLACE EXISTING CONTROLLERS FOR EXISTING FAN COIL UNITS, CABINET UNIT HEATERS, EXHAUST FANS, AND ALL OTHER HVAC EQUIPMENT.REPLACE EXISTING HOT WATER CONTROL VALVES WHERE SHOWN. FIELD VERIFY EXACT SIZE AND LOCATION.
4. REPLACE EXISTING CONTROL VALVES FOR CEILING RADIANT PANELS.
5. EXISTING EQUIPMENT, DUCTWORK, GRILLES, CEILING RADIANT PANELS, ETC. SHALL REMAIN.

GENERAL NOTES:

1. FIELD VERIFY ALL EXISTING CONDITIONS, INCLUDING SIZE, LOCATION, ETC. OF ALL EXISTING EQUIPMENT, CONTROLS, VALVES, ETC.

2. BUILDING WILL REMAIN OCCUPIED THROUGHOUT PROJECT. ALL WORK IN OCCUPIED SPACES, AS WELL AS ANY SHUT-DOWNS SHALL OCCUR AFTER REGULAR BUSINESS HOURS.

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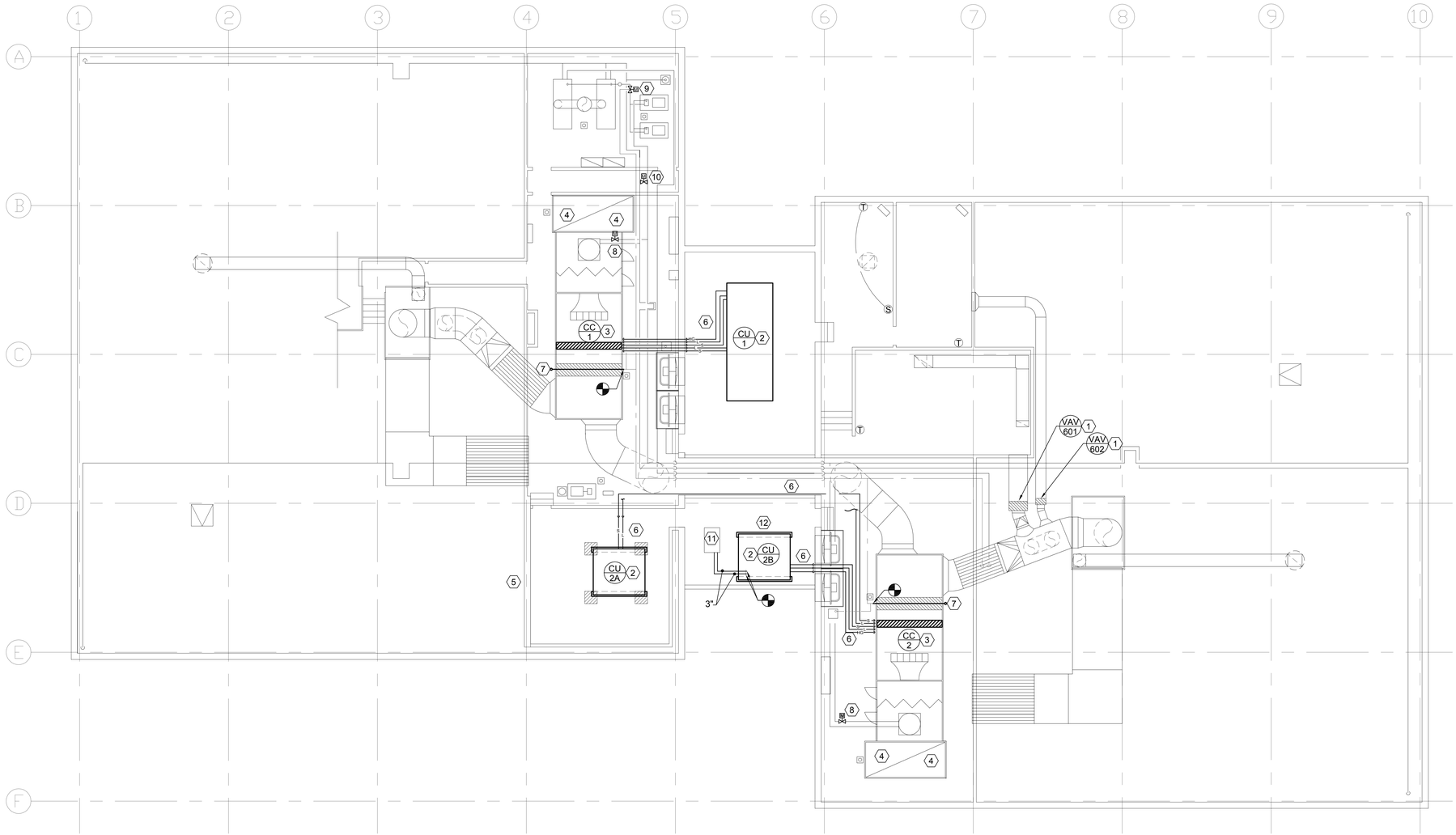
09/22/05
WINWARD M. PACKER
No. 375080
STATE OF UTAH

SHEET TITLE

FIFTH LEVEL MECHANICAL PLAN

SHEET NO.

ME106



PENTHOUSE MECHANICAL PLAN

SCALE: 1/8" = 1'-0"

SHEET NOTES

1. REPLACE EXISTING VAV BOX ASC, ACTUATOR, HOT WATER CONTROL VALVE, AND ALL OTHER ASSOCIATED CONTROLS.
2. PROVIDE NEW AIR COOLED CONDENSING UNIT AND ALL ASSOCIATED REFRIGERANT PIPING, SPECIALTIES, VALVES, ETC. PROVIDE I-BEAM SUPPORT RAILS SIZED BY MANUFACTURER AND MOUNT TO EXISTING ROOF. MOUNT TO EXISTING ROOF SUPPORTS WHERE POSSIBLE. SEE DETAILS AND COORDINATE WITH UNIT SUPPLIER.
3. PROVIDE NEW DX COOLING COIL AND INSTALL IN EXISTING AIR HANDLING UNIT. PROVIDE REFRIGERANT PIPING CONNECTIONS, HOT GAS BYPASS CONNECTION, ETC.
4. PROVIDE NEW FRESH AIR AND RETURN AIR DAMPERS, ACTUATORS, ETC.
5. PROVIDE HINGED ACCESS FRESH AIR LOUVER IN EXISTING WALL AT ROOF.
6. PROVIDE NEW REFRIGERANT PIPING, INCLUDING HOT GAS BYPASS PIPING, FOR NEW CONDENSING UNITS AND COILS. COORDINATE EXACT PIPE SIZING WITH MANUFACTURER'S RECOMMENDATIONS.
7. RELOCATE WATER INLET TO OPPOSITE SIDE OF EVAPORATIVE COOLING MODULE. REPLACE AUTOMATIC MAKE-UP VALVE. COORDINATE WITH ATC TO INCORPORATE AUTO DRAIN AND FLUSH INTO BMS.
8. REPLACE EXISTING PREHEAT COIL VALVE. TIE INTO NEW DDC SYSTEM.
9. REPLACE EXISTING BOILER MIXING VALVE. SEE FLOW SHEET ME901. TIE INTO NEW DDC SYSTEM.
10. REPLACE EXISTING HOT WATER SYSTEM PRESSURE CONTROLLED BYPASS VALVE. SEE BOILER FLOW SHEET, ME901. ADD BALANCING VALVE. TEST AND BALANCE CONTRACTOR SHALL BALANCE BYPASS TO PREVENT EXCESSIVE PRESSURE AT BOILER DURING BYPASS. TIE INTO DDC SYSTEM.
11. RE-LOCATE EXISTING AIR COOLED CHILLER AS SHOWN TO ACCOMMODATE NEW CONDENSING UNIT. DRAIN AND RE-FILL GLYCOL SOLUTION. RE-CONNECT PIPING TO EXISTING DROPS THROUGH ROOF. PROVIDE NEW INSULATION AND NEW ALUMINUM JACKETING TO MATCH EXISTING AT EXPOSED PIPING. FIELD VERIFY EXACT SIZES AND LOCATIONS.
12. SEE STRUCTURAL DETAILS A1, A3, AND A6 ON SHEET ME501 FOR STRUCTURAL MODIFICATIONS REQUIRED AT CU-2B.

GENERAL NOTES:

1. FIELD VERIFY ALL EXISTING CONDITIONS, INCLUDING SIZE, LOCATION, ETC. OF ALL EXISTING EQUIPMENT, CONTROLS, VALVES, ETC.
2. BUILDING WILL REMAIN OCCUPIED THROUGHOUT PROJECT. ALL WORK IN OCCUPIED SPACES, AS WELL AS ANY SHUT-DOWNS SHALL OCCUR AFTER REGULAR BUSINESS HOURS.

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09/22/05
WINWARD M. PACKER
No. 375080
STATE OF UTAH

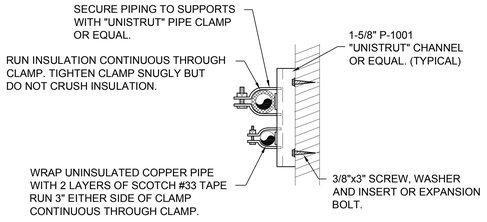
SHEET TITLE

PENTHOUSE MECHANICAL PLAN

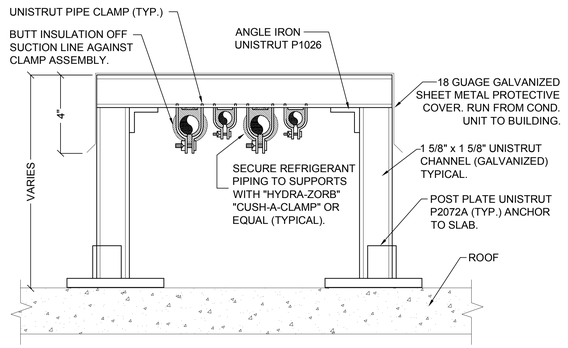
SHEET NO.

ME401

NOTE:
ADAPT TO SITE CONDITIONS IN A PROFESSIONAL MANNER.



D1 SUSPENDED REFRIGERANT PIPE SUPPORT AT WALL
SCALE: NONE



D2 EXTERIOR REFRIGERANT PIPE SUPPORT DETAIL
SCALE: NONE

REFRIGERANT PIPING LEGEND

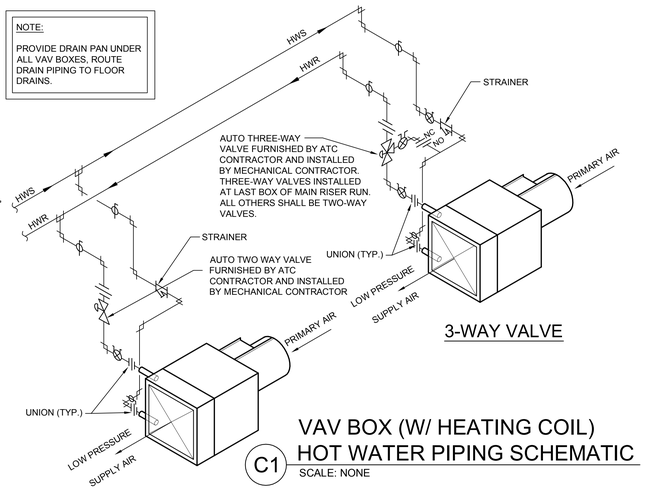
SYMBOL	DESCRIPTION
	REFRIGERANT SHUT-OFF VALVE
	EXPANSION VALVE. SEE DETAIL
	MOISTURE INDICATING SIGHT GLASS
	FLEXIBLE CONNECTION
F	FILTER DRIER
	PIPE SUPPORT. SEE DETAILS
	EXTERIOR PIPE SUPPORT. SEE DETAIL
	TRAP. ONE PIECE FACTORY FABRICATED
	DIRECTION OF SLOPE DOWN
S	SUCTION LINE
L	LIQUID LINE
HG	HOT GAS

REFRIGERANT PIPE SIZES ①

SYMBOL	CIRCUIT #	LIQUID	HORIZONTAL SUCTION	VERTICAL SUCTION	HOT GAS BYPASS
CU 1	1	1-1/8"	3-1/8"	2-5/8"	2-1/8"
CU 1	2	1-1/8"	3-1/8"	2-5/8"	-
CU 2A	1	1-3/8"	3-5/8"	2-5/8"	-
CU 2B	2	1-1/8"	3-1/8"	2-5/8"	2-1/8"

① VERIFY PIPE SIZING WITH MANUFACTURER'S RECOMMENDATIONS. ENGINEER SHALL BE CONTACTED IF MANUFACTURER'S RECOMMENDATIONS ARE DIFFERENT THAN THE ABOVE SIZES. FOLLOW MANUFACTURER'S RECOMMENDATIONS TO INSURE MANUFACTURER WARRANTY IS EFFECTIVE UNLESS DIRECTED OTHERWISE BY ENGINEER.

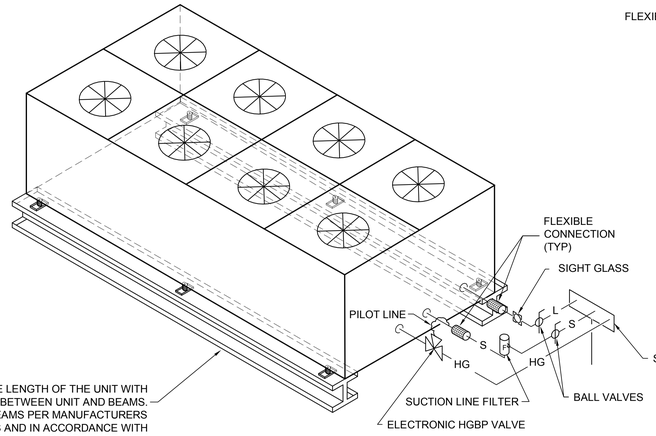
NOTE:
PROVIDE DRAIN PAN UNDER ALL VAV BOXES, ROUTE DRAIN PIPING TO FLOOR DRAINS.



3-WAY VALVE

2-WAY VALVE

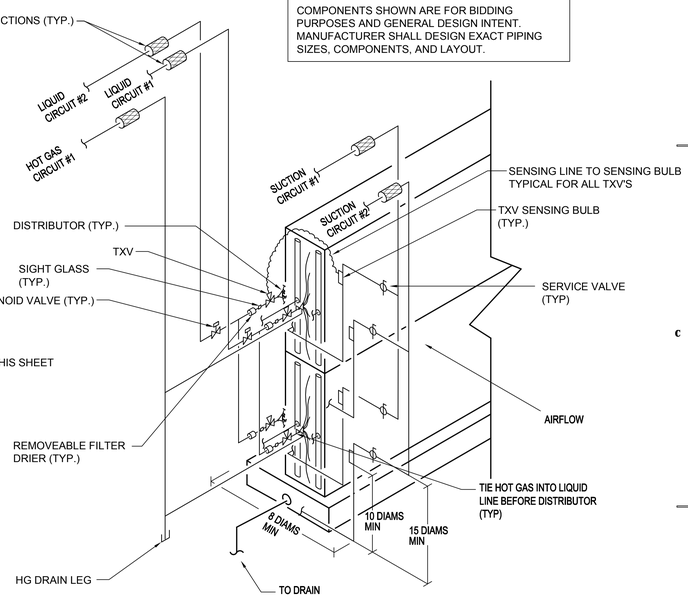
C1 VAV BOX (W/ HEATING COIL) HOT WATER PIPING SCHEMATIC
SCALE: NONE



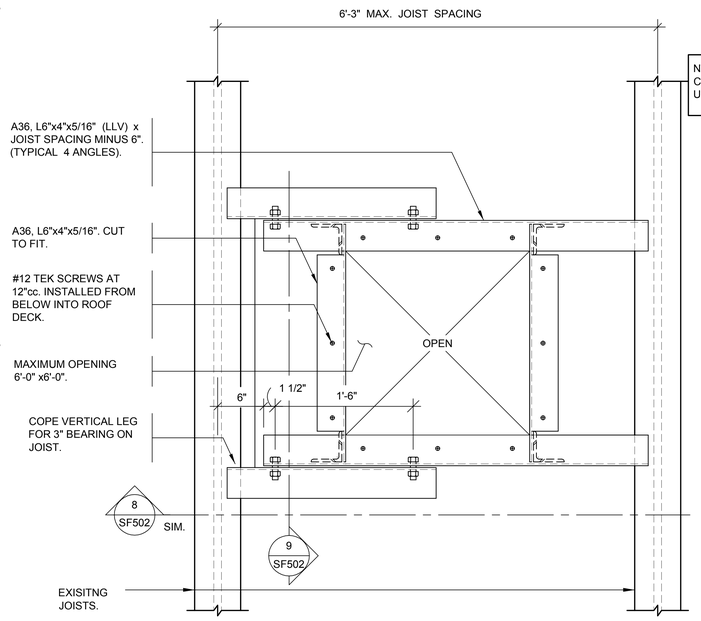
PROVIDE I BEAMS THE LENGTH OF THE UNIT WITH VIBRATION ISOLATORS BETWEEN UNIT AND BEAMS. SIZE ISOLATORS AND BEAMS PER MANUFACTURERS RECOMMENDATIONS AND IN ACCORDANCE WITH SPECIFICATION SECTION 15070. COORDINATE WITH STATE APPROVED ROOFING CONTRACTOR TO PATCH AND SEAL ROOF AS REQUIRED TO MAINTAIN ROOF WARRANTY. ANCHOR UNIT SUPPORT BEAMS TO ROOF.

C3 REFRIGERANT PIPING DETAIL
SCALE: NONE

NOTE:
COMPONENTS SHOWN ARE FOR BIDDING PURPOSES AND GENERAL DESIGN INTENT. MANUFACTURER SHALL DESIGN EXACT PIPING SIZES, COMPONENTS, AND LAYOUT.

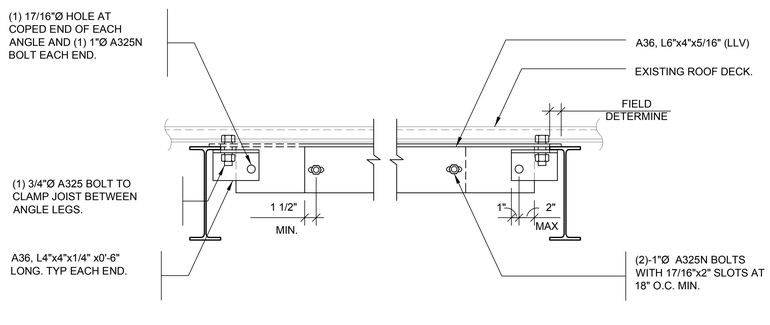


B6 DX COIL PIPING ISOMETRIC
SCALE: NONE

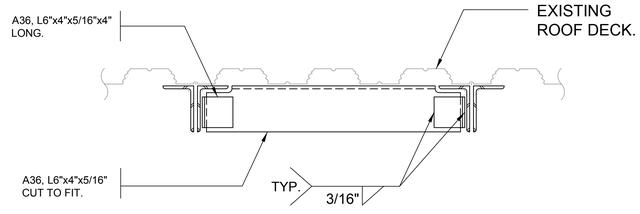


NOTE: THESE SIZES AND THIS CONFIGURATION ARE SUFFICIENT TO CARRY A 2500# LOAD. DO ALL WORK FROM WITHIN THE STRUCTURE UNDERNEATH EXISTING ROOF.

A1 NEW FRAMING AT EXISTING JOISTS (PLAN VIEW)
SCALE: NONE



A3 NEW FRAMING AT EXISTING STEEL JOISTS
SCALE: NONE



A6 NEW FRAMING AT EXISTING ROOF DECK
SCALE: NONE

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PROFESSIONAL ENGINEER 09/22/05 WINWARD M. PACKER No. 375080 STATE OF UTAH

SHEET TITLE
MECHANICAL DETAILS

SHEET NO.
ME501

EXISTING VAV BOX AIRFLOW CALIBRATION SCHEDULE

SYMBOL	AIRFLOW	SCHEDULE NOTES
VAV-507	1860	1,2
VAV-508	520	1,2
VAV-509	2605	1,2
VAV-510	1270	1,2
VAV-511	710	1,2
VAV-512	520	1,2
VAV-513	1375	1,2
VAV-514	1640	1,2
VAV-515	430	1,2
VAV-516	300	1,2
VAV-601	4000	1,2
VAV-602	2000	1,2

(1) COORDINATE WITH DIV 15910 TO CALIBRATE AIRFLOW AT EACH BOX TO VALUES GIVEN.

(2) SET MINIMUM CFM FOR EACH BOX AT 33% (ADJ.) UNLESS OTHERWISE DIRECTED BY OWNER.

EXISTING VAV BOX AIRFLOW CALIBRATION SCHEDULE

SYMBOL	AIRFLOW	SCHEDULE NOTES
VAV-213	1830	1,2
VAV-214	600	1,2
VAV-215	360	1,2
VAV-216	820	1,2
VAV-301	430	1,2
VAV-302	2140	1,2
VAV-303	1080	1,2
VAV-304	440	1,2
VAV-305	1910	1,2
VAV-306	1485	1,2
VAV-307	300	1,2
VAV-308	2070	1,2
VAV-309	740	1,2
VAV-310	470	1,2
VAV-311	1400	1,2
VAV-312	2195	1,2
VAV-313	450	1,2
VAV-314	520	1,2
VAV-315	400	1,2
VAV-316	570	1,2
VAV-317	945	1,2
VAV-318	420	1,2
VAV-319	2065	1,2
VAV-401	500	1,2
VAV-402	2365	1,2
VAV-403	2550	1,2
VAV-404	590	1,2
VAV-405	1445	1,2
VAV-406	3075	1,2
VAV-407	2875	1,2
VAV-408	2460	1,2
VAV-409	465	1,2
VAV-410	2715	1,2
VAV-411	1805	1,2
VAV-412	1630	1,2
VAV-413	1800	1,2
VAV-414	440	1,2
VAV-501	460	1,2
VAV-502	2045	1,2
VAV-503	1685	1,2
VAV-504	380	1,2
VAV-505	2190	1,2
VAV-506	3290	1,2

EXISTING VAV BOX AIRFLOW CALIBRATION SCHEDULE

SYMBOL	AIRFLOW	SCHEDULE NOTES
VAV-001	1280	1,2
VAV-002	220	1,2
VAV-003	575	1,2
VAV-004	600	1,2
VAV-005	520	1,2
VAV-006	1205	1,2
VAV-007	380	1,2
VAV-008	1680	1,2
VAV-009	1065	1,2
VAV-010	360	1,2
VAV-011	905	1,2
VAV-012	2170	1,2
VAV-013	1170	1,2
VAV-014	1300	1,2
VAV-101	SEE SCHEDULE	1,2
VAV-102	SEE SCHEDULE	1,2
VAV-103	1965	1,2
VAV-104	SEE SCHEDULE	1,2
VAV-105	SEE SCHEDULE	1,2
VAV-106	1210	1,2
VAV-107	SEE SCHEDULE	1,2
VAV-108	1760	1,2
VAV-109	SEE SCHEDULE	1,2
VAV-110	SEE SCHEDULE	1,2
VAV-111	SEE SCHEDULE	1,2
VAV-112	-	1,2
VAV-113	SEE SCHEDULE	1,2
VAV-114	1330	1,2
VAV-115	SEE SCHEDULE	1,2
VAV-116	600	1,2
VAV-117	630	1,2
VAV-201	325	1,2
VAV-202	2155	1,2
VAV-203	1845	1,2
VAV-204	370	1,2
VAV-205	1300	1,2
VAV-206	1900	1,2
VAV-207	2360	1,2
VAV-208	2130	1,2
VAV-209	1210	1,2
VAV-210	1290	1,2
VAV-211	1790	1,2
VAV-212	340	1,2

DX COOLING COIL SCHEDULE

SYMBOL	OVERALL SIZE	NUMBER OF SECTIONS	CFM	MIN. REQUIRED CAPACITY	CONDITIONS ENTERING EVAPORATOR		CONDITIONS LEAVING EVAPORATOR		MAX FV (FPM)	ROWS	FINS/INCH	MANUF. & MODEL #	SCHEDULE NOTES
				TOT. MBH	DB °F	WB °F	DB °F	WB °F					
CC 1	130" x 111"	2@54"x122" x6Rx12FPI	50,000	1500	80.0	62.0	52.0	50.0	500	6	8	COMMERCIAL COILS INC.	1,2,3,4,5
CC 2	130" x 111"	2@54"x122" x6Rx12FPI	50,000	1500	80.0	62.0	52.0	50.0	500	6	8	COMMERCIAL COILS INC.	1,2,3,4,5

(1) COMPLETE WITH TXV'S, SOLENOID VALVES, COIL DISTRIBUTORS, HOT GAS BYPASS CONNECTION , AND ALL OTHER ACCESSORIES AS RECOMMENDED BY MANUFACTURER FOR A COMPLETE AND FUNCTIONAL SYSTEM.

(2) SEE SPECIFICATIONS AND DETAILS FOR ACCESSORIES, APPROVED MANUFACTURERS, ETC.

(3) COIL SHALL BE CAPABLE OF AT LEAST A 45° F DISCHARGE AIR TEMPERATURE AT LOWER AIRFLOW CONDITIONS.

(4) PROVIDE WITH HOUSING, CONDENSATE DRAIN PAN, ETC. AS REQUIRED FOR COMPLETE INSTALLATION.

(5) DIFFERENT CIRCUIT ARRANGEMENTS MUST REQUEST ENGINEERS PRIOR APPROVAL TO BID. IF ACCEPTED, MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ASSOCIATED CHANGES INCLUDING REFRIGERANT PIPING, ELECTRICAL CONNECTIONS, ETC.

AIR COOLED CONDENSING UNIT SCHEDULE

SYMBOL	AREA SERVED	MIN SIZE (TONS)	MCA	MOCP	OPERATING WEIGHT	MANUFACTURER & MODEL #	SCHEDULE NOTES
CU 1	CC-1	125	239	250	7260	CARRIER 38AH124	1,2,3,4,5,6,7,8, 10
CU 2A	CC-2	62.5	114.3	150	2500	CARRIER 38AH124	1,2,3,4,5,6,7,9, 10
CU 2B	CC-2	62.5	114.3	150	2500	CARRIER 38AH124	1,2,3,4,5,6,7,8, 9,10

(1) REFRIGERANT R-22.

(2) AT DESIGN CONDITIONS AND 100° F EAT.

(3) CONDENSING UNIT SYMBOLS CORRESPOND WITH COOLING COIL SYMBOLS..

(4) SEE SPECIFICATIONS FOR APPROVED MANUFACTURERS.

(5) ELECTRIC SERVICE: 460/3Ø/60HZ

(6) SEE SPECIFICATIONS FOR ADDITIONAL DETAILS AND ACCESSORIES SUCH AS ELECTRONIC HOT GAS BYPASS, LONWORKS CONTROLLER, ETC.

(7) SEE DRAWINGS FOR LAYOUT AND INSTALLATION. SUPPLIER SHALL VERIFY ADEQUATE CLEARANCES, REFRIGERANT PIPING LAYOUT, ETC. PRIOR TO BIDDING.

(8) UNIT SHALL HAVE DUAL REFRIGERANT CIRCUIT.

(9) UNIT SHALL HAVE SINGLE REFRIGERANT CIRCUIT.

(10) DIFFERENT CIRCUIT ARRANGEMENTS MUST REQUEST ENGINEERS PRIOR APPROVAL TO BID. IF ACCEPTED, MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ASSOCIATED CHANGES INCLUDING REFRIGERANT PIPING, ELECTRICAL CONNECTIONS, ETC.

VAV BOX SCHEDULE

SYMBOL	INLET DIA. (INCHES)	INLET VELOCITY (FPM)	COOLING			HEATING (20° DELTA T WATER)							DISCHARGE NC @ 1.5" WG ΔPs	MANUF. MODEL #	SCHEDULE NOTES
			MAX CFM	MIN CFM	MX APD (IN)	COIL EAT	COIL LAT	MAX CFM	COIL MBH	FLOW GPM	EWT	(FT) PD	ROWS		
VAV 101	8"Ø	1200	465	155	.22	65	105	460	17.1	1.7	180	.5	2	20	PRICE SDV-8	1
VAV 102	16"Ø	1700	2335	778	.40	65	105	1900	70.7	7.7	180	11	2	23	PRICE SDV-16	1
VAV 104	14"Ø	1500	1570	523	.28	65	105	1550	57.7	5.8	180	4.85	2	25	PRICE SDV-14	1
VAV 105	8"Ø	1800	570	190	.32	65	105	460	17.1	1.7	180	.5	2	23	PRICE SDV-8	1
VAV 107	14"Ø	1600	1665	555	.31	65	105	1550	57.7	5.8	180	4.85	2	26	PRICE SDV-14	1
VAV 109	14"Ø	1900	1880	627	.37	65	105	1550	57.7	5.8	180	4.85	2	26	PRICE SDV-14	1
VAV 110	8"Ø	1300	410	137	.18	65	105	380	14.1	1.4	180	.4	2	20	PRICE SDV-8	1
VAV 111	8"Ø	1800	600	200	.33	65	105	460	17.1	1.7	180	.5	2	23	PRICE SDV-8	1
VAV 113	14"Ø	1850	1860	620	.37	65	105	1550	57.7	5.8	180	4.85	2	27	PRICE SDV-14	1
VAV 115	14"Ø	1850	1880	627	.37	65	105	1550	57.7	5.8	180	4.85	2	27	PRICE SDV-14	1

(1) SEE SPECIFICATIONS FOR OTHER APPROVED MANUFACTURES

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EMAIL: excellence@whw-engineering.com

PROJECT NAME & ADDRESS

PROVO REGIONAL CENTER CHILLER REPLACEMENT AND CONTROLS UPGRADE

DFCM No. 05031310

Provo, Utah

MARK	DATE	REVISION

PROJECT MANAGER: WMP
DRAWN BY: STAFF
CHECKED BY: SLW
DATE: 09/22/05
WHW JOB NO.: 05018

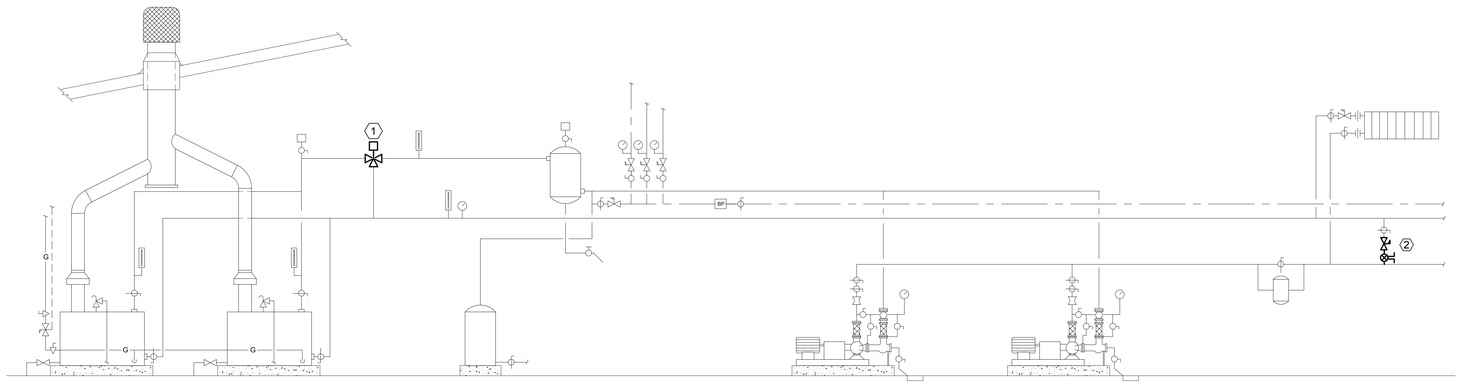
PROFESSIONAL ENGINEER 09/22/05 WINWARD M. PACKER No. 375080 STATE OF UTAH

SHEET TITLE

MECHANICAL SCHEDULES

SHEET NO.

ME601



HEATING PIPING FLOW DIAGRAM

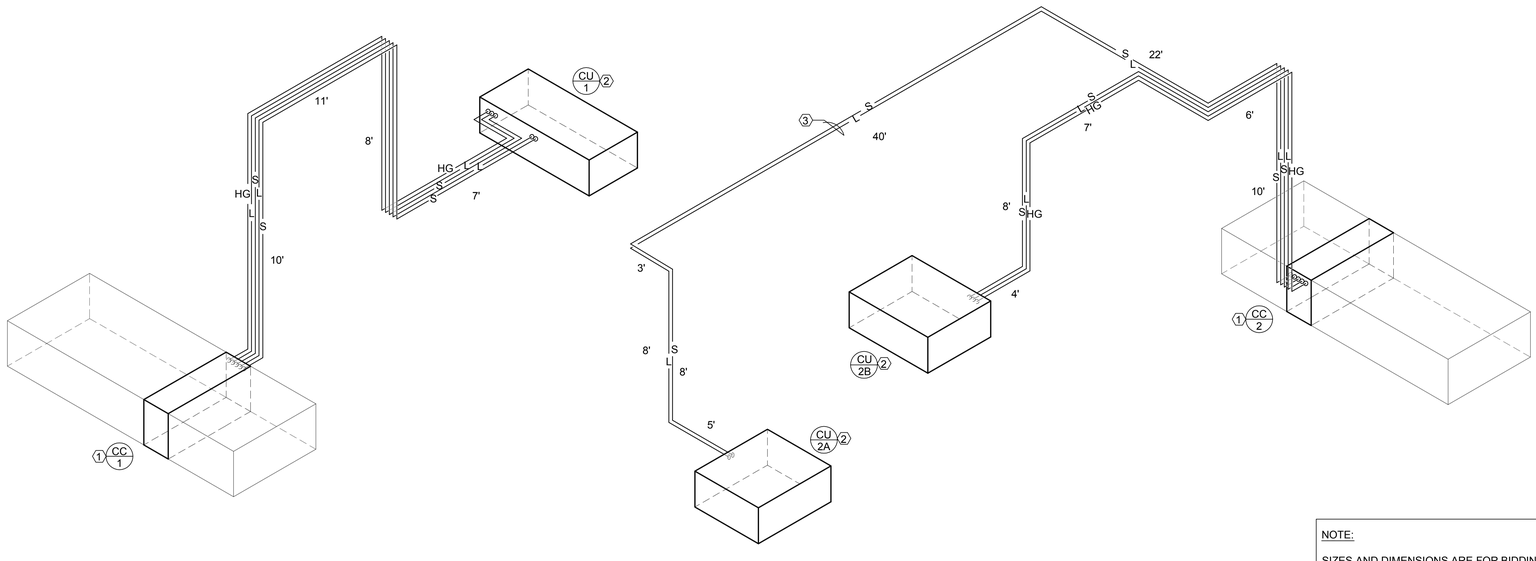
SCALE: NONE

HEATING PIPING SHEET NOTES:

1. REPLACE EXISTING 4" BOILER 3-WAY MIXING VALVE.
2. REPLACE 2" HOT WATER SYSTEM PRESSURE BYPASS VALVE. PROVIDE BALANCING VALVE AND BALANCE TO NOT EXCEED BOILER RELIEF PRESSURE DURING FULL BYPASS.

NOTE:

FIELD VERIFY ALL EXISTING CONDITIONS, INCLUDING SIZE, LOCATION, ETC. OF ALL EXISTING EQUIPMENT, CONTROLS, VALVES, ETC.



REFRIGERANT PIPING ISOMETRIC

SCALE: NONE

NOTE:

SIZES AND DIMENSIONS ARE FOR BIDDING PURPOSES ONLY. FIELD VERIFY EXACT DIMENSIONS, ROUTING, ETC. MANUFACTURER SHALL DESIGN EXACT PIPING SIZES, COMPONENTS, AND LAYOUT.

REFRIGERANT PIPING SHEET NOTES:

1. SEE COIL CONNECTION DETAIL SHEET ME501.
2. SEE CONDENSING UNIT PIPING DETAIL SHEET ME501.
3. RACK PIPING ON WALL. SEE PLAN VIEW SHEET ME401.

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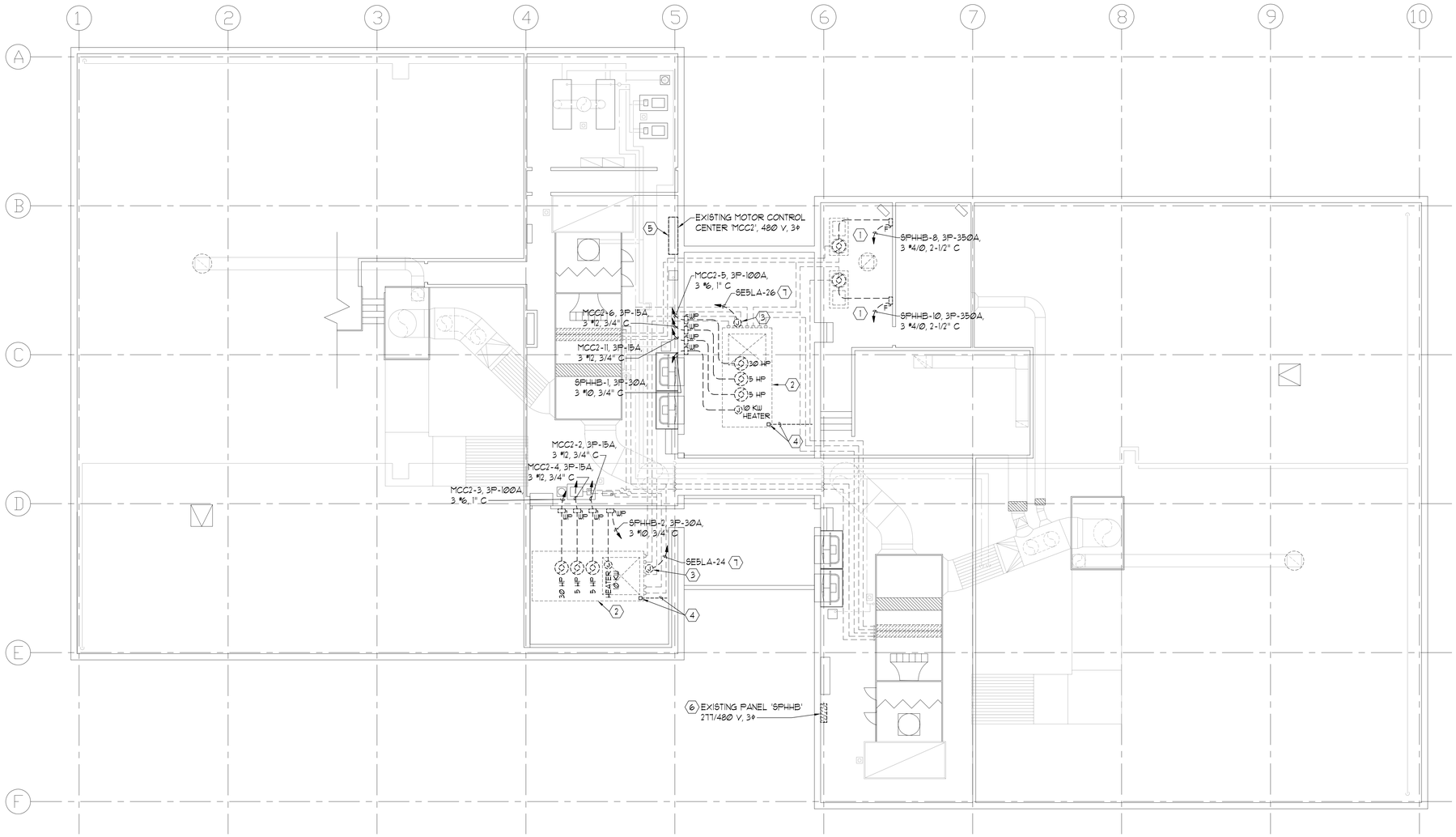
SHEET TITLE

FLOW DIAGRAM AND ISOMETRICS

SHEET NO.

ME901



PENTHOUSE ELECTRICAL DEMOLITION PLAN

SCALE: 1/8" = 1'-0"

0 4' 8' 16' N

GENERAL ELECTRICAL NOTES:

FOR ALL ELECTRICAL PLANS

1. COORDINATE MECHANICAL EQUIPMENT LOCATIONS WITH MECHANICAL PLANS AND MECHANICAL CONTRACTOR.
2. LOCATIONS OF EXISTING ELECTRICAL EQUIPMENT, RECEPTACLES, OUTLETS, BRANCH CIRCUIT WIRING, ETC, ARE BASED ON AVAILABLE EXISTING BUILDING ELECTRICAL DRAWINGS. FIELD VERIFY EXISTING LOCATIONS AND CIRCUITING AND IMMEDIATELY NOTIFY THE PROJECT ENGINEER OF ANY DISCREPANCIES WHICH MAY ADVERSELY AFFECT COMPLETION OF THE WORK.
3. DEMOLITION IS SHOWN FOR CONTRACTORS REFERENCE ONLY. FIELD VERIFY QUANTITIES AND LOCATIONS OF ALL EXISTING MATERIAL AND EQUIPMENT TO BE REMOVED. REMOVE ALL ABANDONED CONDUIT WIRING, BOXES, EQUIPMENT, ETC., ASSOCIATED WITH MECHANICAL DEMOLITON, WHETHER SPECIFICALLY SHOWN OR NOT.
4. CONTRACTOR MAY USE EXISTING BRANCH CIRCUIT WIRING AND RACEWAYS WHERE CONVENIENT TO CONNECT TO NEW ELECTRICAL DEVICES ONLY IF THE EXISTING WIRING AND RACEWAYS ARE IN GOOD CONDITION AND MEET DIVISION 16 SPECIFICATION REQUIREMENTS FOR NEW WIRING AND RACEWAYS.
5. WHERE REMOVAL OF EXISTING ELECTRICAL EQUIPMENT INTERRUPTS EXISTING BRANCH CIRCUITS OR FEEDERS TO EXISTING EQUIPMENT TO REMAIN, FURNISH AND INSTALL NEW CONDUIT AND WIRING AS REQUIRED TO RECONNECT THE EXISTING EQUIPMENT TO REMAIN.
6. ALL MATERIALS AND EQUIPMENT REMOVED SHALL REMAIN THE PROPERTY OF THE OWNER AND SHALL BE TURNED OVER TO THE OWNER FOR STORAGE OR BE DISPOSED OF BY THE CONTRACTOR AS DIRECTED BY THE OWNER.
7. TAKE ALL PRECAUTIONS NECESSARY TO AVOID DAMAGE TO THE EXISTING BUILDING. REPAIR ALL DAMAGE INCURRED BY DEMOLITION AND NEW CONSTRUCTION TO EXACTLY MATCH SURROUNDING SURFACES AND/OR CONDITIONS WITHOUT ADDITIONAL COST TO THE OWNER. COORDINATE REPAIRS WITH THE GENERAL CONTRACTOR.

REFERENCE NOTES:

FOR SHEET ED101 ONLY

1. EXISTING COMPRESSOR TO BE REMOVED, SEE MECHANICAL PLANS. REMOVE EXISTING ELECTRICAL SERVICE COMPLETE INCLUDING WIRING, CONDUIT, SAFETY SWITCH, BOXES, ETC..
2. EXISTING FLUID COOLING TOWER TO BE REMOVED, SEE MECHANICAL PLANS. REMOVE EXISTING ELECTRICAL SERVICE COMPLETE INCLUDING WIRING, CONDUIT, SAFETY SWITCHES, BOXES, ETC..
3. REMOVE ELECTRICAL CIRCUIT FOR PIPING HEAT TRACE CABLE COMPLETE INCLUDING WIRING, CONDUIT, BOXES, ETC..
4. REMOVE EXISTING LIGHTNING PROTECTION SYSTEM BONDING CABLE FROM EXISTING FLUID COOLING TOWER TO EXISTING ROOF CONDUCTOR.
5. LEAVE EXISTING STARTERS IN 'MCC2' SERVING REMOVED EQUIPMENT IN PLACE AND TURNED OFF. PROVIDE NEW ENGRAVED NAMEPLATES TO INDICATE STARTERS AS "SPARE".
6. LEAVE EXISTING BREAKERS IN PANEL '5PHHB' SERVING REMOVED EQUIPMENT IN PLACE AND TURNED OFF OR REPLACE WITH NEW CIRCUIT BREAKER TO SERVE NEW EQUIPMENT AS SHOWN ON SHEET E-101. PROVIDE NEW ENGRAVED NAMEPLATES AS REQUIRED TO INDICATE EXISTING BREAKERS AS "SPARE".
7. EXISTING PANEL 'SE5LA' LOCATED ON FIFTH LEVEL BELOW, SEE SHEET E-103. PROVIDE NEW TYPEWRITTEN CIRCUIT INDEX FOR EXISTING PANEL TO REFLECT REMOVAL OF EXISTING CIRCUITS.

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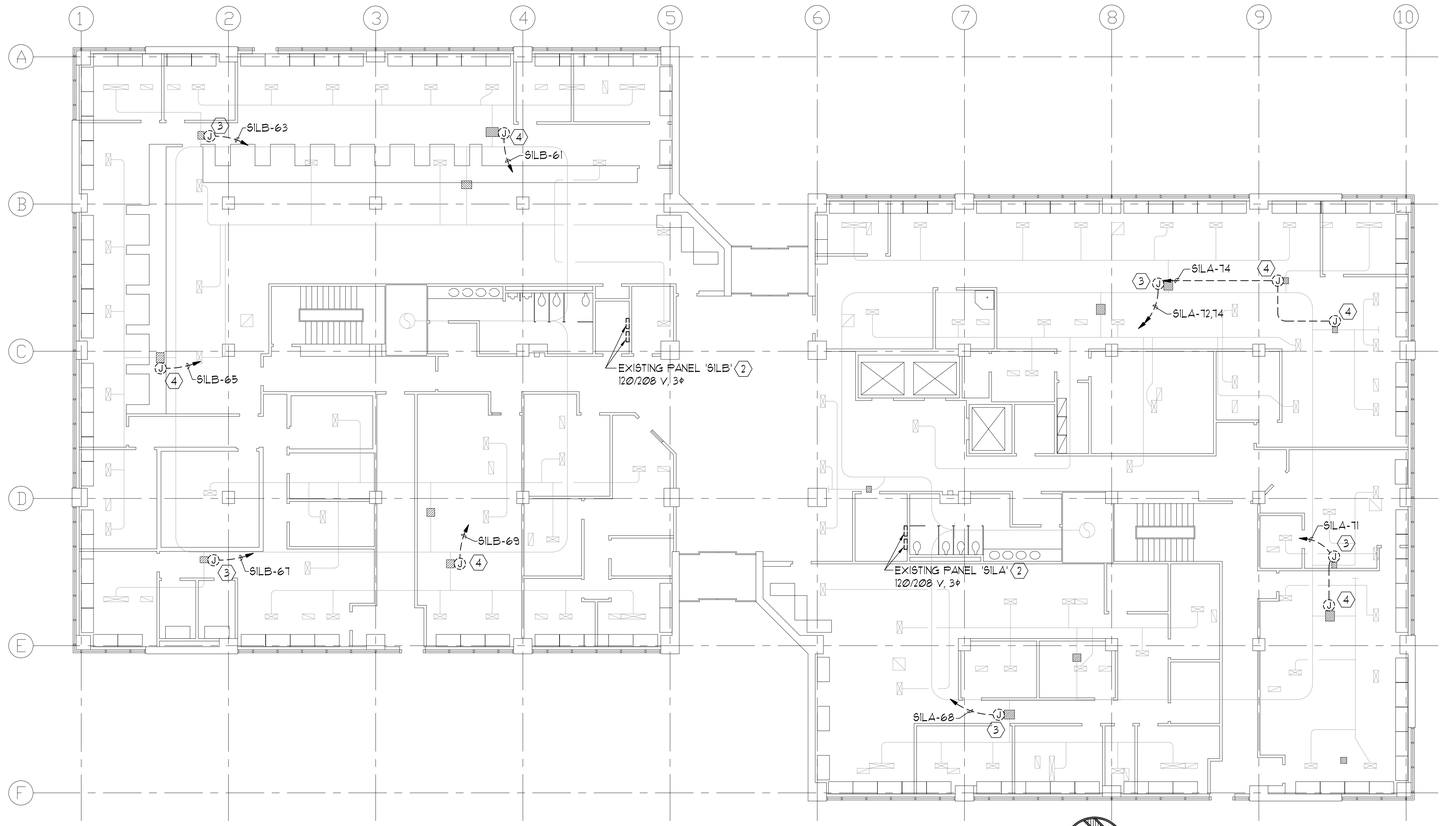
REGISTERED PROFESSIONAL ENGINEER RAYMOND G. KOLKMAN 175780 9/19/05 STATE OF UTAH

SHEET TITLE
PENTHOUSE ELECTRICAL DEMOLITION PLAN

SHEET NO.
ED101

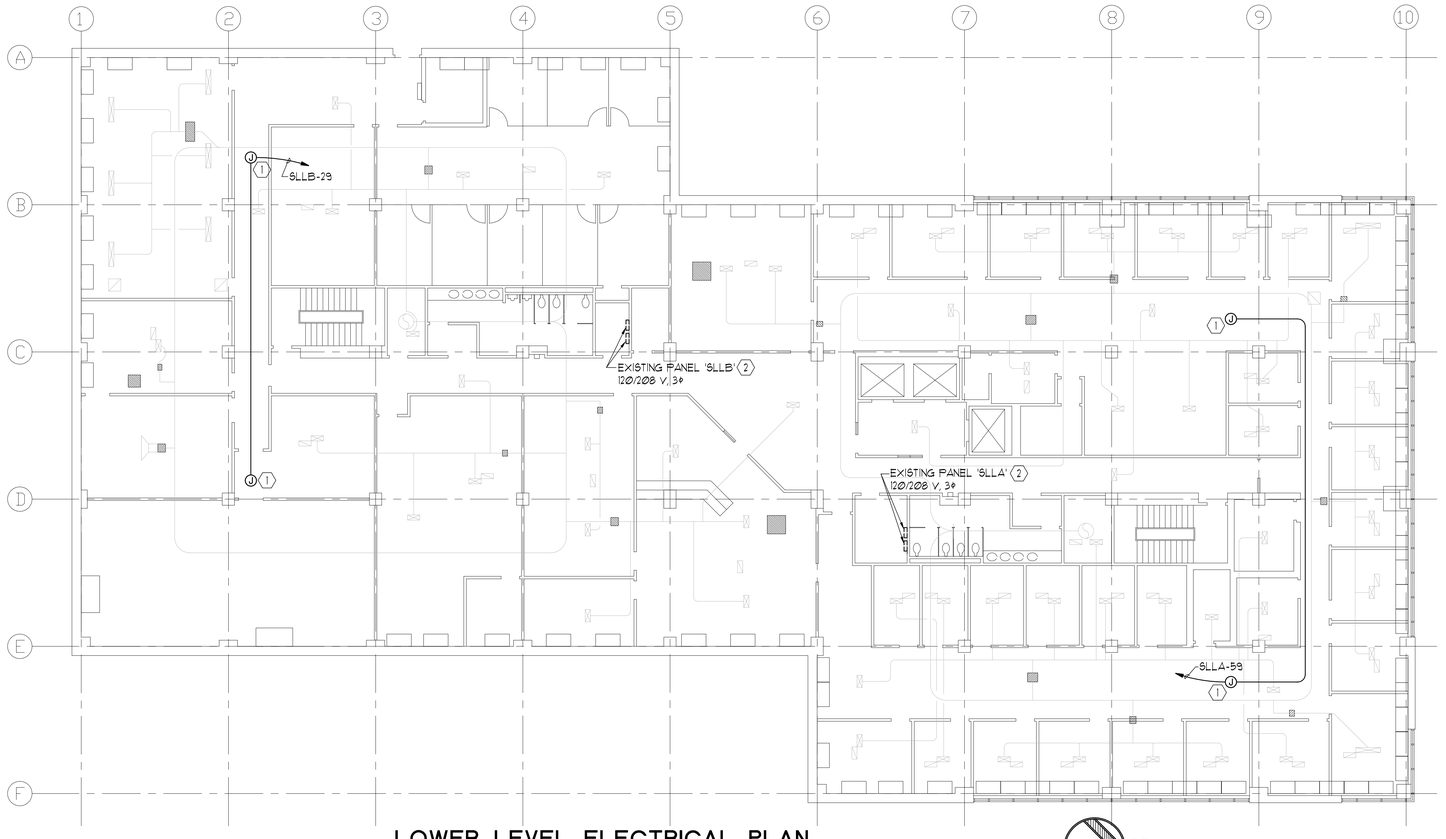


FIRST LEVEL ELECTRICAL PLAN

SCALE: 1" = 10'-0"

0 5' 10' 20'

N



LOWER LEVEL ELECTRICAL PLAN

SCALE: 1" = 10'-0"

0 5' 10' 20'

N

REFERENCE NOTES:

FOR SHEET E-101 ONLY

1. PROVIDE NEW JUNCTION BOX IN ACCESSIBLE CEILING SPACE FOR POWER TO NEW DDC LOW VOLTAGE CONTROL POWER SUPPLY. CONNECT TO SPARE 1P-20A BREAKER IN EXISTING PANEL INDICATED. POWER SUPPLIES AND LOW VOLTAGE WIRING TO BE PROVIDED BY CONTROLS CONTRACTOR. FIELD COORDINATE JUNCTION BOX LOCATIONS WITH CONTROLS CONTRACTOR.
2. PROVIDE NEW TYPEWRITTEN CIRCUIT INDEX FOR EXISTING PANEL TO REFELECT ALL CHANGES IN CIRCUITING.
3. EXISTING FAN POWERED VAV BOX TO BE REPLACED WITH NEW NON-POWERED VAV BOX, SEE MECHANICAL PLANS. DISCONNECT AND REMOVE EXISTING ELECTRICAL CONNECTION. TERMINATE EXISTING CIRCUIT IN NEW JUNCTION BOX FOR NEW DDC LOW VOLTAGE CONTROL POWER SUPPLY AS DESCRIBED IN REFERENCE NOTE 1. WHERE EXISTING CIRCUIT IS CONNECTED TO 1P-30A BREAKER, RECONNECT TO SPARE 1P-20A BREAKER.
4. EXISTING FAN POWERED VAV BOX TO BE REPLACED WITH NEW NON-POWERED VAV BOX, SEE MECHANICAL PLANS. DISCONNECT AND REMOVE EXISTING ELECTRICAL SERVICE COMPLETE INCLUDING DISCONNECT SWITCH, WIRING, CONDUIT, BOXES, ETC..

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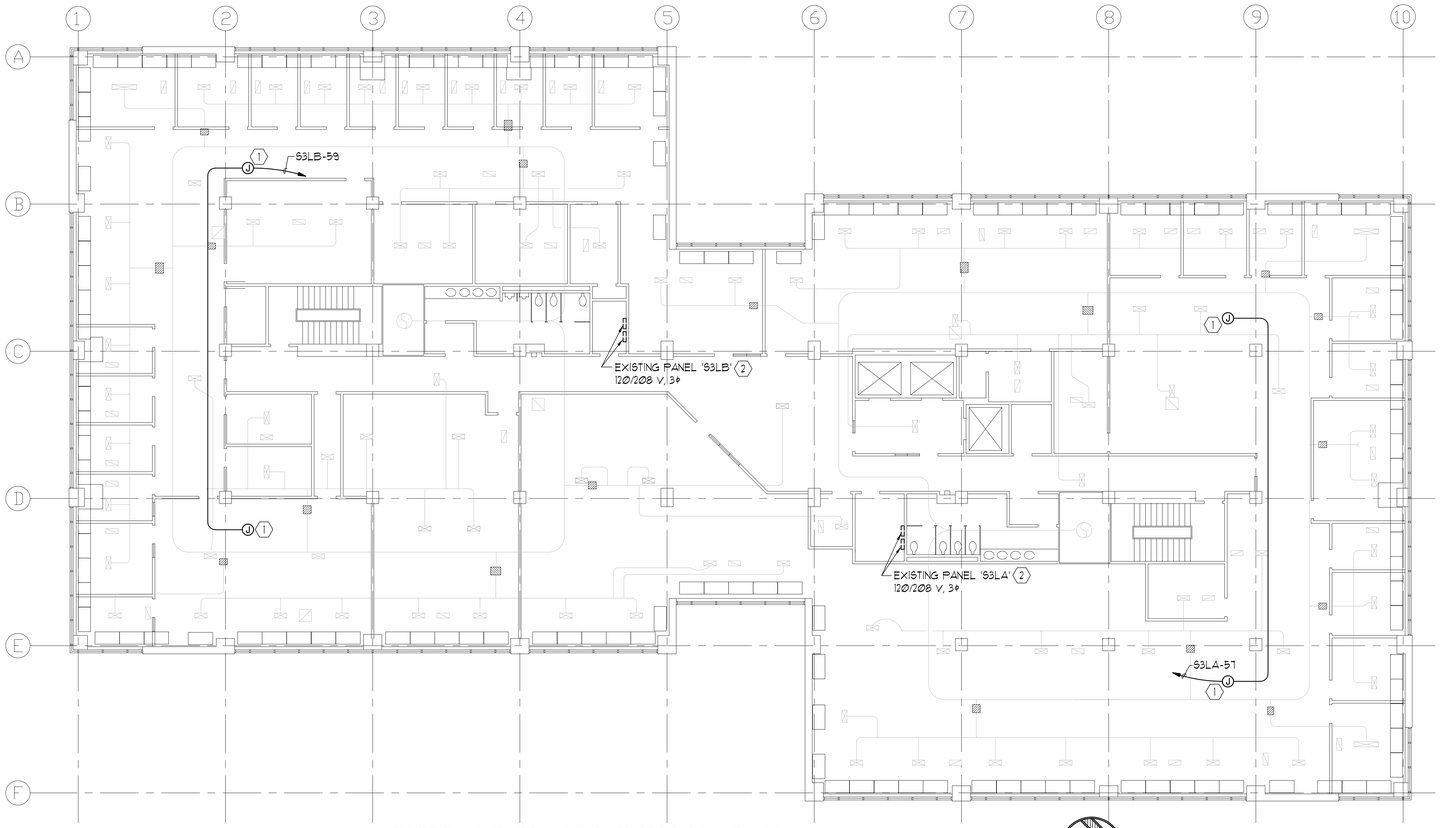
REGISTERED PROFESSIONAL ENGINEER
RAYMOND G. KOLKMAN
175780
9/19/05
STATE OF UTAH

SHEET TITLE

LOWER LEVEL AND FIRST LEVEL ELECTRICAL PLANS

SHEET NO.

E-101

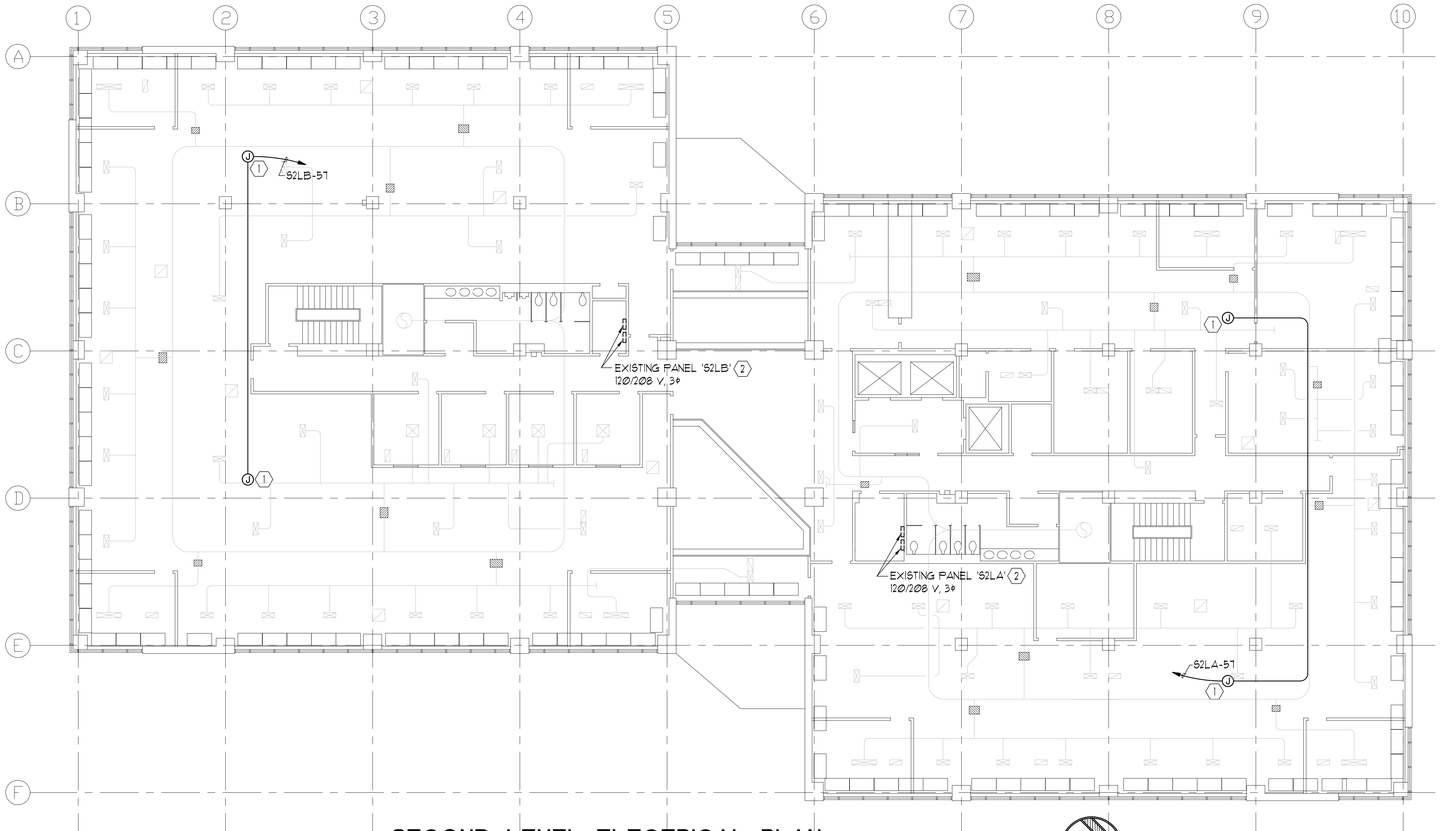


THIRD LEVEL ELECTRICAL PLAN

SCALE: 1" = 10'-0"

0 5' 10' 20'

N



SECOND LEVEL ELECTRICAL PLAN

SCALE: 1" = 10'-0"

0 5' 10' 20'

N

REFERENCE NOTES:

FOR SHEET E-101 ONLY

1. PROVIDE NEW JUNCTION BOX IN ACCESSIBLE CEILING SPACE FOR POWER TO NEW DDC LOW VOLTAGE CONTROL POWER SUPPLY. CONNECT TO SPARE 1P-20A BREAKER IN EXISTING PANEL INDICATED. POWER SUPPLIES AND LOW VOLTAGE WIRING TO BE PROVIDED BY CONTROLS CONTRACTOR. FIELD COORDINATE JUNCTION BOX LOCATIONS WITH CONTROLS CONTRACTOR.
2. PROVIDE NEW TYPEWRITTEN CIRCUIT INDEX FOR EXISTING PANEL TO REFELECT ALL CHANGES IN CIRCUITING.

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WHW JOB NO.: 05018

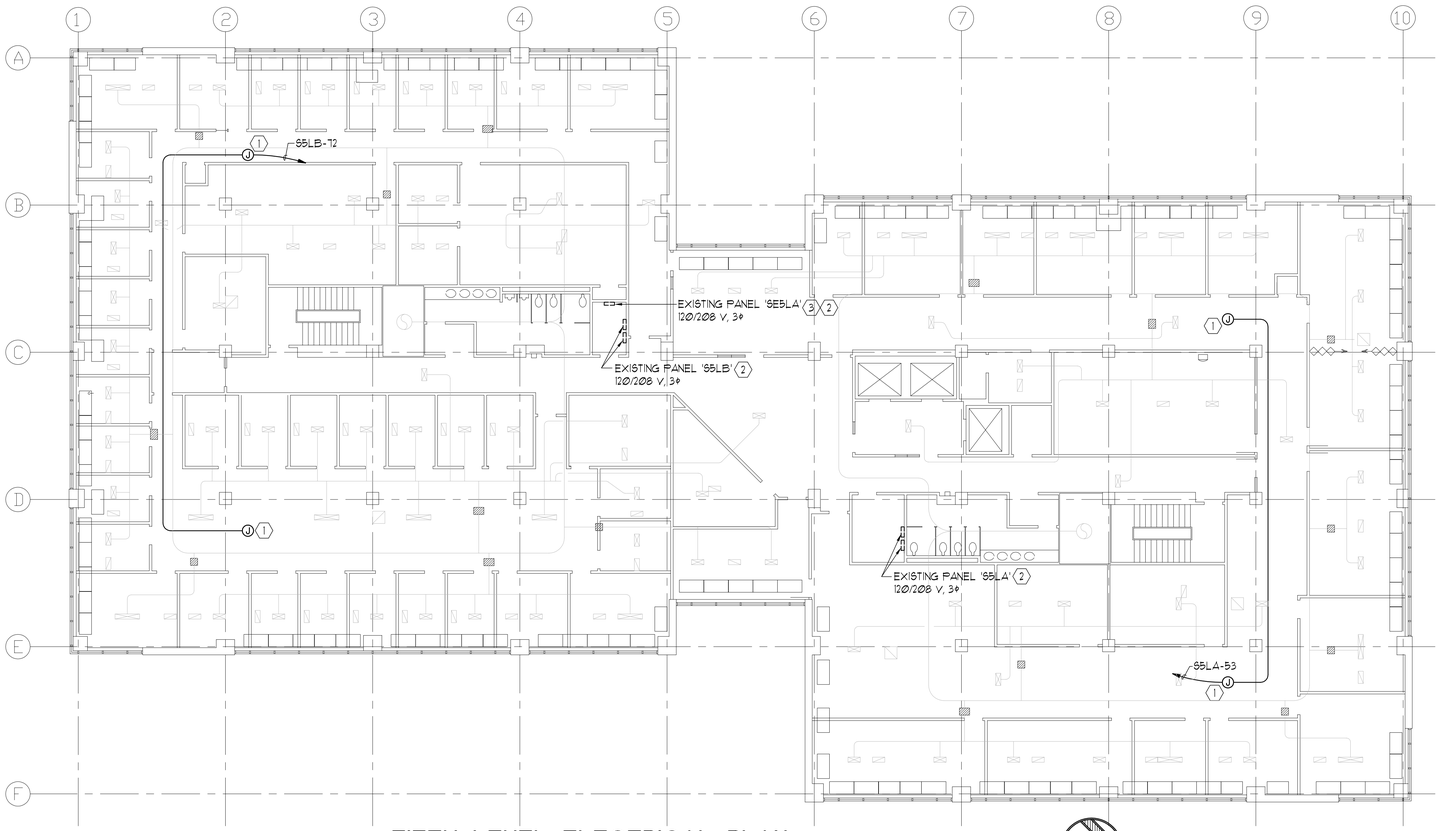
REGISTERED PROFESSIONAL ENGINEER
RAYMOND G. KOLKMAN
175780
9/19/05
STATE OF UTAH

SHEET TITLE

SECOND LEVEL AND THIRD LEVEL ELECTRICAL PLANS

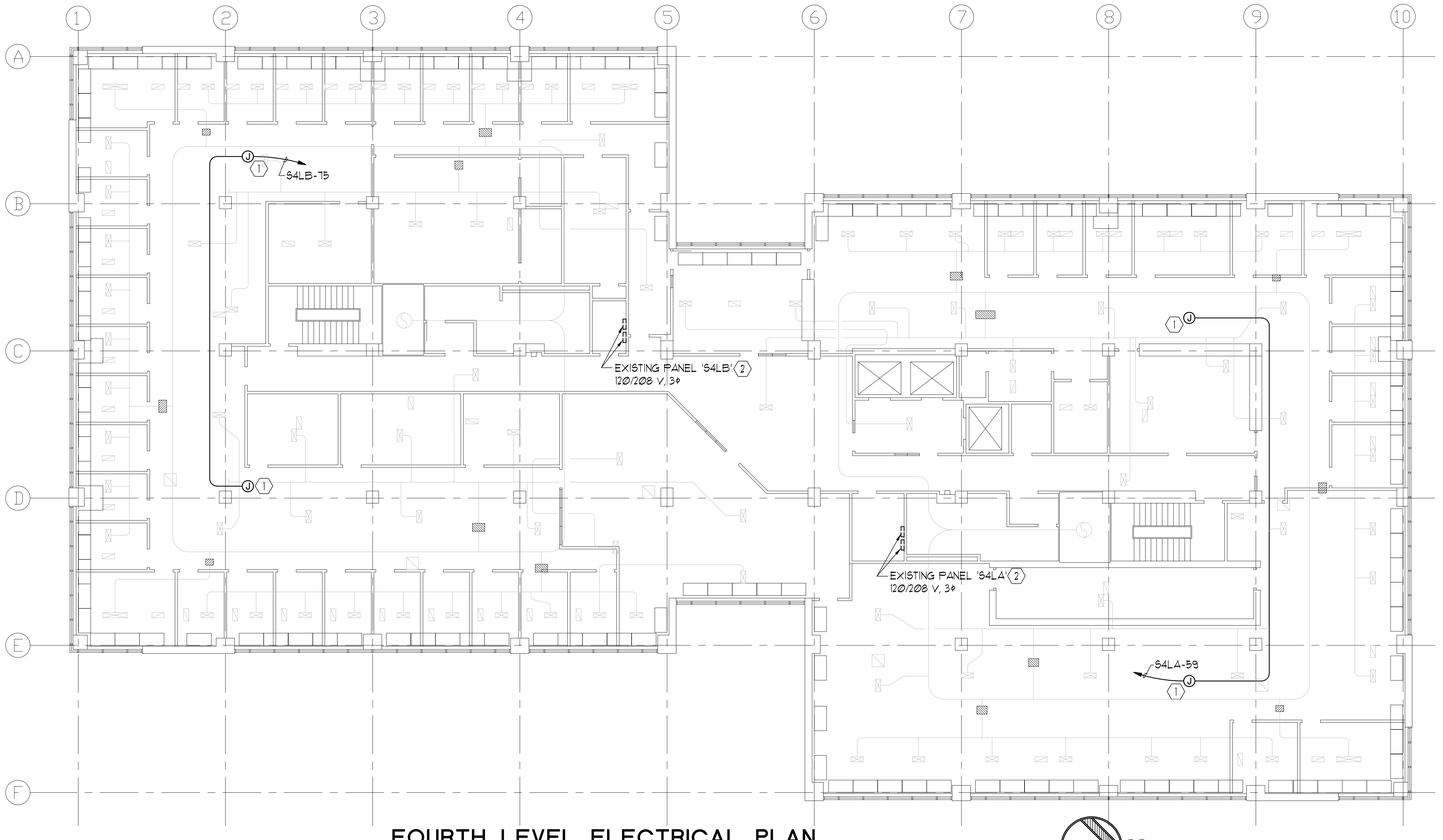
SHEET NO.

E-102



FIFTH LEVEL ELECTRICAL PLAN

SCALE: 1" = 10'-0"



FOURTH LEVEL ELECTRICAL PLAN

SCALE: 1" = 10'-0"

REFERENCE NOTES:

FOR SHEET E-101 ONLY

1. PROVIDE NEW JUNCTION BOX IN ACCESSIBLE CEILING SPACE FOR POWER TO NEW DDC LOW VOLTAGE CONTROL POWER SUPPLY. CONNECT TO SPARE 1P-20A BREAKER IN EXISTING PANEL INDICATED. POWER SUPPLIES AND LOW VOLTAGE WIRING TO BE PROVIDED BY CONTROLS CONTRACTOR. FIELD COORDINATE JUNCTION BOX LOCATIONS WITH CONTROLS CONTRACTOR.
2. PROVIDE NEW TYPEWRITTEN CIRCUIT INDEX FOR EXISTING PANEL TO REFELECT ALL CHANGES IN CIRCUITING.
3. REMOVE EXISTING CIRCUITS FROM EXISTING PANEL 'S5ELA' TO EXISTING PIPE HEAT TRACE CABLE ON ROOF. SEE PENTHOUSE ELECTRICAL DEMOLITION PLAN, SHEET ED101.

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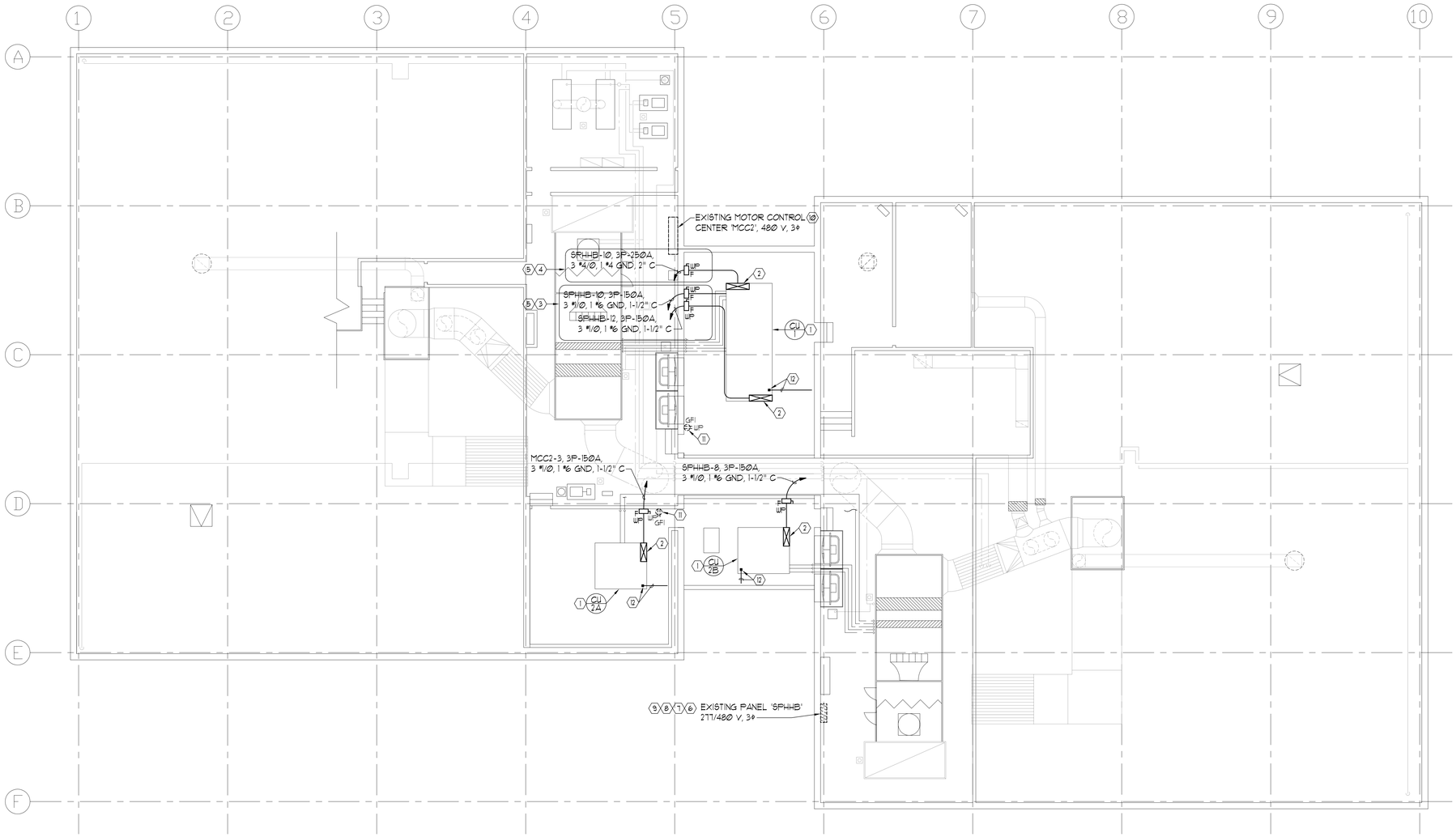
REGISTERED PROFESSIONAL ENGINEER RAYMOND G. KOLKMAN 175780 9/19/05 STATE OF UTAH

SHEET TITLE

FOURTH LEVEL AND FIFTH LEVEL ELECTRICAL PLANS

SHEET NO.

E-103



PENTHOUSE ELECTRICAL PLAN

SCALE: 1/8" = 1'-0"

0 4' 8' 16' N

SYMBOL LIST

SYMBOL	DESCRIPTION
J	NEW JUNCTION BOX
J	EXISTING JUNCTION BOX
GFI	EXISTING RECEPTACLE WITH GROUND FAULT CIRCUIT INTERRUPTER
	EXISTING POWER PANELBOARD, 120/208 VOLT, 3 PHASE
	EXISTING POWER PANELBOARD, 277/480 VOLT, 3 PHASE
A-13S2	3 PHASE, 4 WIRE HOMERUN INDICATING PANEL AND CIRCUIT NUMBERS
	NEW BRANCH CIRCUIT CONCEALED IN FINISHED AREAS
	EXISTING BRANCH CIRCUIT
M	NEW MOTOR
M	EXISTING MOTOR
F	NEW SAFETY SWITCH, 'F' INDICATES FUSED, 'NF' INDICATES NON-FUSED
h	EXISTING SAFETY SWITCH
	NEW STARTER OR CONTROL PANEL
CU 1	EQUIPMENT SCHEDULE SYMBOL
2	REFERENCE NOTE SYMBOL
▪	NEW LIGHTNING PROTECTION SYSTEM BOND CONNECTION
▫	EXISTING LIGHTNING PROTECTION SYSTEM BOND CONNECTION
WP	INDICATES ITEM IN WEATHERPROOF (NEMA 3R MINIMUM) ENCLOSURE

⑤ CARRIER EQUIPMENT SCHEDULE

EQUIP. NO.	DESCRIPTION	CIRCUIT NUMBER	VOLTS	PHASE	WATTS H.P.	BREAKER	STARTERS FURNISH	STARTERS INSTALL	STARTERS SIZE	AUX. CONT.	LOCATION
CU 1	AIR COOLED CONDENSING UNIT (MODULE 124A)	SPHHB-10	480	3	102.6 AMPS	3P-150A	M	M	M	-	ON ROOF
CU 1	AIR COOLED CONDENSING UNIT (MODULE 124B)	SPHHB-12	480	3	102.6 AMPS	3P-150A	M	M	M	-	ON ROOF
CU 2A	AIR COOLED CONDENSING UNIT	MCC2-3	480	3	102.6 AMPS	3P-150A	M	M	M	-	ON ROOF
CU 2B	AIR COOLED CONDENSING UNIT	SPHHB-8	480	3	102.6 AMPS	3P-150A	M	M	M	-	ON ROOF

E - ELECTRICAL CONTRACTOR
M - MECHANICAL CONTRACTOR

⑤ TRANE EQUIPMENT SCHEDULE

EQUIP. NO.	DESCRIPTION	CIRCUIT NUMBER	VOLTS	PHASE	WATTS H.P.	BREAKER	STARTERS FURNISH	STARTERS INSTALL	STARTERS SIZE	AUX. CONT.	LOCATION
CU 1	AIR COOLED CONDENSING UNIT	SPHHB-10	480	3	232 AMPS	3P-250A	M	M	M	-	ON ROOF
CU 2A	AIR COOLED CONDENSING UNIT	MCC2-3	480	3	116 AMPS	3P-150A	M	M	M	-	ON ROOF
CU 2B	AIR COOLED CONDENSING UNIT	SPHHB-8	480	3	116 AMPS	3P-150A	M	M	M	-	ON ROOF

E - ELECTRICAL CONTRACTOR
M - MECHANICAL CONTRACTOR

REFERENCE NOTES:

FOR SHEET E-101 ONLY

1. NEW CONDENSING UNIT, SEE MECHANICAL PLANS. PROVIDE NEW ELECTRICAL SERVICE AS SHOWN.
2. CONTROL PANEL FURNISHED WITH NEW CONDENSING UNIT.
3. CARRIER CONDENSING UNIT CU/1 REQUIRES 2 SEPARATE POWER CONNECTIONS AS SHOWN.
4. TRANE CONDENSING UNIT CU/1 REQUIRES A SINGLE POINT POWER CONNECTION AS SHOWN.
5. INCLUDE ONLY COST FOR ELECTRICAL CONNECTION TO TRANE OR CARRIER CONDENSING UNIT CU/1. DO NOT INCLUDE COST FOR BOTH.
6. PROVIDE NEW 3P-150A, 480 VOLT, 42 KAIC (MIN.) CIRCUIT BREAKER IN EXISTING PANEL 'SPHHB' TO SERVE NEW CARRIER OR TRANE CONDENSING UNIT CU/2B. FIELD VERIFY EXISTING PANEL MANUFACTURER AND TYPE.
7. PROVIDE TWO (2) NEW 3P-150A, 480 VOLT, 42 KAIC (MIN.) CIRCUIT BREAKERS IN EXISTING PANEL 'SPHHB' TO SERVE NEW CARRIER CONDENSING UNIT CU/1. FIELD VERIFY EXISTING PANEL MANUFACTURER AND TYPE. SEE REFERENCE NOTE 5 ABOVE.
8. PROVIDE ONE (1) NEW 3P-250A, 480 VOLT, 42 KAIC (MIN.) CIRCUIT BREAKER IN EXISTING PANEL 'SPHHB' TO SERVE NEW TRANE CONDENSING UNIT CU/1. FIELD VERIFY EXISTING PANEL MANUFACTURER AND TYPE. SEE REFERENCE NOTE 5 ABOVE.
9. PROVIDE NEW ENGRAVED NAMEPLATES TO IDENTIFY LOAD SERVED BY NEW CIRCUIT BREAKERS IN EXISTING PANEL 'SPHHB'.
10. PROVIDE NEW 3P-150A, 480 VOLT, 42 KAIC (MIN.) FEEDER BREAKER IN EXISTING MOTOR CONTROL CENTER MCC2' TO SERVE NEW CARRIER OR TRANE CONDENSING UNIT CU/2A. REPLACE EXISTING STARTER CUBICLE ABANDONED BY DEMOLITION OR INSTALL IN SPACE AS REQUIRED. FIELD VERIFY EXISTING MCC MANUFACTURER AND TYPE, AND INSTALLATION REQUIREMENTS. PROVIDE NEW ENGRAVED NAMEPLATE FOR NEW FEEDER BREAKER.
11. EXISTING WEATHERPROOF GFCI DUPLEX RECEPTACLE TO REMAIN. SHOWN FOR REFERENCE ONLY.
12. PROVIDE NEW LIGHTNING PROTECTION SYSTEM BONDING CONNECTION FROM EXISTING ROOF CONDUCTOR TO NEW CONDENSING UNIT. PROVIDE NEW BONDING PLATE, NEW 32 STRAND BARE COPPER BRAIDED CABLE, AND NEW PARALLEL GROOVE CLAMP AND INSTALL IN ACCORDANCE WITH NFPA-780 "STANDARD FOR THE INSTALLATION OF LIGHTNING PROTECTION SYSTEMS", 2004 EDITION.

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REGISTERED PROFESSIONAL ENGINEER RAYMOND G. KOLKMAN 175780 9/19/5 STATE OF UTAH

SHEET TITLE
PENTHOUSE ELECTRICAL PLAN AND SCHEDULES

SHEET NO.
E-104